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ABSTRACT

This document addresses itself to changing social conditions or, more specifically, to the conditions under which nonintellective success is defined by our society. In this document success is viewed as: (1) intellectual development; (2) personality development and adjustment; (3) motivational and aspirational development; (4) social development; (5) aesthetic-cultural development; (6) moral, philosophical, and religious development; and (7) other types of college success, including post-college success, development of student power, development in basic educational skills, benefits to society, and miscellaneous criteria. Great care was taken to make this literature coverage as complete as possible. However, this was not the primary purpose of the study. Some studies judged by the authors to be of lower quality than others are not annotated for reasons such as unique approach, stimulating and thought-provoking conclusions, experimentation with specific criteria or predictor measures formerly overlooked, results unlike those other similiar studies, utilization of uncommon statistics, etc. Furthermore, relevant research at the elementary and secondary level was included in the review if it seemed to have definite applicability to college students. (Author/KE)

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MONOGRAPH FIFTEEN:

THE MANY FACES OF COLLEGE SUCCESS AND THEIR NONINTELLECTIVE CORRELATES: THE PUBLISHED LITERATURE THROUGH THE DECADE OF THE SIXTIES

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BY:
Oscar T. Lenning
Leo A. Munday
C. Bernard Johnson
Allen R. Vander Well
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PREFACE

This is the second of two publications resulting from a mammoth project in which a thorough review was made of the published literature dealing with the numerous kinds of possible college outcomes, herein referred to as college success. The project lasted for a total of over five years, and it is probably as comprehensive an attempt at searching out the literature for a broad area as has ever been made in the annals of educational research.

The focus throughout the study was on nonintellective correlates of the various criteria of college success. In addition to the published studies dealing with each criterion including those for which it was only a peripheral concern, theoretical articles and books were also reviewed. Furthermore, relevant research at the elementary and secondary level was included in the review if it seemed to have definite applicability to college students.

While the first publication was a monograph that dealt with traditional academic criteria of college success (grades, persistence, and academic learning), the present volume is primarily concerned with the various possible nonacademic criteria of college success. It should be of interest to practitioners in the field of education as well as to educational researchers.

Acknowledgments are due to the junior authors of this publication. Leo A. Munday, Vice President of ACT's Research and Development Division, played a major role in the initial formulation of the study, provided continual encouragement and guidance throughout the entire project, and in other ways made important contributions to the study and the final draft of the manuscript. Three research assistants to the senior author also played major roles in the project which warranted their inclusion as authors of the manuscript: Eldon J. Brue served on the project during the winter and spring of 1969; Allen R. Vander Well served from August, 1969, through July, 1970; and O. Bernard Johnson served from October, 1969, through to the completion of the project. All three assistants made important contributions in the literature search and in writing annotations, were in charge of coordinating the study for extended periods of time because of other commitments faced by the senior author, and have reviewed the final draft for this book and made suggestions for revision. Therefore, they are also included as co-authors, with their names ordered according to the amount of time they spent with the project.

Sincere appreciation is also due to a number of other persons who helped with the project. Mrs. Barbara Davidson, formerly of ACT's Research Services Department, and work-study aides Miss Virginia LeSuer and Miss Jane Nodland spent many days helping search the literature. William C. Wellner, Assistant Professor of Education at the University of Illinois, with his graduate students in higher education also provided noteworthy assistance by reviewing a portion of the journal articles being surveyed. Miss Sandra

Schneider, Mrs. Patricia Mennenga, and Mrs. Sandra Vanderploeg (especially Mrs. Mennenga), as secretaries to the senior author during the life of the project, spent many hours typing manuscript drafts, proofing, editing, and checking in the libraries to make sure the entries were accurate. Thanks also go to E. James Maxey, Director of Research Services, ACT, for his support and suggestions and to Mrs. Elaine King, Mrs. Jane Lauer, and Mrs. Evelyn Bollinger for making form and editorial suggestions. In addition, appreciation is hereby extended to Mr. Richard L. Clemons for typing the final manuscript. Last, but certainly not least, thanks go to Mrs. Lorene Lenning, who spent hundreds of hours helping in the literature search, who helped edit the final copy, and who as a devoted wife and helpmate provided the strength and encouragement which allowed the senior author to endure through the entire five-year ordeal.

Acknowledgment and appreciation are also hereby extended to the members of ACPA Commission IX for initiating the study and to The American College Testing Program for co-sponsoring the project and for providing the major financial support needed.

O.T.L.

INTRODUCTION AND OVERVIEW

Before I had this teacher, I saw no importance or relevance between my life and the history of the world. He opened the door to me. He made me interested in a subject I had thought dead. For the first time in all my schooling, I actually wanted to learn more.

He taught what was in the curriculum but he also attempted to prepare us for the world outside school and home that we'll face when we are on our own.

She gave me the will to set high goals and then really strain to reach my goals. Besides all this, she helped me find values to guide my life.

Not only did they educate me academically, they taught me social awareness, how to get along with other people.

My best teacher showed me what maturity meant. He changed my entire way of thinking, from being a self-centered effete snob into a concerned member of the student body.

He got me to think. He showed me the world honestly. He showed me that something could be done to make the world better. He showed me I could help.

The above statements were made by particular college freshmen, each of whom had been asked to describe noteworthy characteristics of his or her best teacher(s) in high school.[1] Although the statements quoted pertain directly to the student's high school education, almost every college president would probably include each of the above types of impact on students as an important goal of his institution. Nevertheless, evaluations of a college's success in meeting such objectives have generally *not* been attempted.

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[1] Gordon Sabine, *When you listen, this is what you can hear . . .*, (Iowa City, Iowa: The American College Testing Program, 1971), pp. 74, 80, 90-91.

This book will focus on the diversity of "college success" and on published research into "college success." As such, it has direct applicability to the concerns of college administrators, faculty, counselors, and research personnel.

How one person defines "success" may *not* mean "success" for another. And as implied by the quotations at the beginning of this chapter, this is certainly true of success in college. One student may merely wish to adjust to college and to persist through to graduation while another student would consider himself a failure if he did not graduate with honors. Different students may have as their primary criterion of success such different things as marriage, popularity, social mobility and status, preparing for a job, maturation, etc. In fact, most students probably perceive college success in terms of multiple goals and achievements depending on individual priorities.

Success in college can also be examined from the point of view of the college, of professional associations in education and the social and behavioral sciences, of interested persons such as parents, and of society in general. As with students, different segments of each of these groups define success according to differing criteria, depending on priorities.

Most of the research in the literature has focused on various kinds of student development as criteria of college success. There were other criteria noted, however, such as the effect of our colleges on society's standard of living and quality of life. Even so, these criteria may be considered to be the ultimate result of overall student development exhibited by succeeding generations of millions of college students.

College Success in Another Context

Much of the research reviewed in this book assumes many of the fundamentals of traditional Western ideology concerning social development. Here we are referring to a growth process or more precisely a metaphor of growth based on an analogy of change related to the growth manifested in an organism. This analogy is part of a much larger one in which society as a whole is seen as being organismic. It is a historical approach aimed at studying change over time. This is an old notion of development and assumes that we all go through distinct sequential stages in this developmental process. Traditionally, our goal has been to discover general principles of development.

Given the individual student, behavioral scientists assume not only change in time but also a special distinctive type of change. Development or growth is presumed to be the basic nature of man, and the idea is to make comparisons among the growth patterns of individuals. This sequential developmental process often requires channeling, and this is the role of our educational institutions.

Growth also implies many other attributes such as directionality, which means that growth is not a random process, but rather that it moves from one point in time to another. This movement is cumulative and at any given moment is the cumulative result of all that has been experienced in a given individual's life. Much research in the area of tests and measurement is designed to get at this process of developmental growth, and in many instances this process has been segmented into distinct stages or ability levels. Growth is assumed to be a lineal, cumulative developmental process.

Many sociologists believe that this particular model focuses on the wrong end of a much larger process and is also deeply entrenched in a logic that sets up a cause as the beginning and end of the same process. A possible alternative to the developmental model of psychology and the resulting direction which future research could take as a result will be discussed in this section.

This book addresses itself to changing social conditions or, more specifically, to the conditions under which nonintellective success as defined by our society is possible. In this sense it is a book about excellence and the difficulties that we as a society encounter in our pursuit of this goal.

Success or excellence tends to be based on some societal measure of equality and inequality. As a society we hold that men are not equal concerning innate ability or motivation, and it logically follows that men will not be equal in their achievements. Research in the general area of grades and persistence tends to support this contention. To balance this inequality, we also believe in equal opportunity. In theory this means that all members of our society have an equal chance to compete within the established framework of societal goals and rules. Such an orientation merely places before every member of our society the range of available opportunities. Naturally, this range is bounded by societal requirements that are subject to change over time. It would be extremely difficult to excel in the production and marketing of millstones today.

As a society, we also tend to stress individual or competitive performance—survival of the fittest, etc. So in a sense, our pursuit of success as a society represents a synthesis of opposing ideologies.

Traditional research has centered around this metaphor of developmental growth, given time constraints; and, as such, little or no emphasis is placed on changing cultural parameters. Such an orientation also makes it too easy to get bogged down in the search for an assumed cause and effect relationship.

In the alternative sociological perspective, the larger society is the desired goal. Competence is a prerequisite for participation and assumes mastery of certain basic skills such as command of the language in written and spoken forms, etc. According to Inkeles,[2] competency

> Is the ability effectively to attain three sets of statuses: those which one's society will normally assign one, those in the repertoire of one's social system which one may appropriately aspire to, and those which one might reasonably invent or elaborate for oneself [p. 36].

If we shift our emphasis away from this growth metaphor to the concept of conpetence, then the college experience can be put into a new perspective. Such an orientation focuses on an end product—the individual after he has been socialized—rather than on the formative or developmental process itself.

Using Inkeles' definition, competence refers to a set of alternative roles provided by a given society as well as the capacity to move to new roles, i.e., role manipulation. The college experience is part of a much larger process of socialization designed to produce competent people as defined by our society. Any given society is dependent on some degree of consensus as based on shared systems of symbols and norms acquired through socialization. New goals are constantly evolving; therefore, consensus is never complete.

Socialization implies conforming to the ways of a given society or particular group. This degree of consensus and goal attainment is achieved as individuals fit their behavior to the expectation of others and acknowledge to some extent the existence of social norms. However, diversity also exists—deviation from social norms—and this is a necessary condition for social change. Colleges as microcosms of the larger society can reflect the fact that man is, to a large degree, quite capable of evaluating alternatives, making choices from among alternatives, and perhaps even creating his own goals.

Socialization is a means by which social and cultural continuity are attained.[3] As a process it promotes the skills appropriate for participation in societal institutions. It promotes competence as an end product, and its effectiveness as a process is usually assessed by adult role performance.

This brings up the problem of differential socialization. Using command of language as an example, if mastery is inadequate, then full participation is impossible. Individuals in this category are then penalized by the sanction system due to an inability to communicate in an acceptable manner. Once again we are confronted with the fact that our pursuit of success as a society represents a synthesis of opposing ideologies.

[2] Alex Inkeles, Social structure and the socialization of competence, *Harvard Educational Review*, 1966, 36.

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[3] John A. Clausen (Ed.), *Socialization and society*, (Boston: Little Brown, & Co., 1968).

There is an overriding research question to which social and behavioral scientists should address themselves according to such a formulation. That question asks why certain people as a result of socialization are less competent and perform inadequately in a given social situation. Certain kinds of skills are required by a modern industrial society of a substantial number of its members. Without these skills individuals shift into some form of dependency or deviance. Current research in areas such as anthropology and sociology as well as education has shown that these skills are unevenly distributed in our society. How do these differences come about? Is it the result of differential socialization practices and experiences?

The Development of the Project

This book is the result of a project on college success inaugurated in 1967 by Commission IX of the American College Personnel Association. At that time the commission was entitled *Commission on Testing and Prediction of Academic Success*, but the name of the commission has since been changed to *Commission on Assessment for Student Development*. The name change reflects not only the change in the tenor of the times but also the developing focus of the college success project.

The commission, which was at that time under the chairmanship of Phelon J. Malouf of the University of Utah, asked one of its members, Leo A. Munday of The American College Testing Program, to initiate development of an annotated bibliography on "nonintellective factors related to success in college." Dr. Munday and his research assistant at that time, the senior author of this book, developed a plan of action; and the project commenced in the fall of 1967.

Although it was assumed that the commission had been thinking strictly in terms of grades and persistence as criteria, it was felt that other types of college success were just as important and should also be explored. The commission agreed with this, so the initial phase of the project involved searching the *Psychological Abstracts* back ten years, through 1957. References to research articles dealing with nonintellective predictors and observed to have criterion variables that someone might consider as being "college success" were entered along with descriptive information onto specially prepared "journal article evaluation sheets." Over 2,000 references were identified, after which the sheets were sorted into criterion categories and then into subcategories. Therefore, the categories and subcategories for the classification of college success were, in a manner of speaking, empirically derived.

Once some college success categories and the foci of the study had been ascertained, a thorough search of the literature was initiated. Searches were made of the various indexes and published books of abstracts in education, student personnel work, psychology, sociology, and medicine. Searches were also made of library card indexes, of *Books in Print*, and of references listed at the end of books and journal articles. Further references were found by paging through tables of contents and pages of volume after volume of journals available in the libraries of The University of Iowa and of The American College Testing Program. Interestingly, this latter method brought to light some of the most unique and creative studies that were found.

For references found, the following were to be summarized on the evaluation sheet: (*a*) the problem and goals of the study, (*b*) description and size of the sample, (*c*) instruments used, (*d*) research procedures, (*e*) unique features of the study, (*f*) criticisms of the study, (*g*) rating of overall impression of quality, and (*h*) results and conclusions. This information was used later to further refine the college success classifications initially derived and to select the studies to be annotated.

As time passed, the token funds provided for the project by the American College Personnel Association became depleted, and the project was still in its initial stages. Therefore, The American College Testing Program (ACT) took over sponsorship of the study and provided funds and personnel to assure its completion.

High priority projects in the senior author's normal workload plus other professional responsibilities necessitated some long interruptions in the course of the project. In addition, the turnover in personnel working on the project created further problems of continuity and uniformity, resulting in one completion deadline after another being passed without reaching the final goal. Originally the literature review was to cover only through 1967. Because of the long delays, however, it was later decided that the review should cover the published literature through to the end of the decade. The end of the decade of the sixties seemed a natural breaking point from which some future review could begin.

A large number of references originally gathered were later deleted for various reasons, many being judged as inappropriate for inclusion. Others were unpublished papers which probably cannot be readily obtained by most readers of this book and were thus excluded. The thinking was that the publications included should be available to be really useful and that the most important studies for which papers are read at conventions and other meetings would usually be reported in journals or other publications at a later date. Because of size considerations, it was also decided to limit the listings only to published literature.

The original intention was to provide *one* comprehensive and wide-ranging source book for persons interested in college success and its development. At a late date, however, it was decided to separate the materials into two different publications, one dealing with academic criteria of development and the other with nonacademic criteria of development. The reasons for this decision were that (*a*) it became apparent that the book would be so large as to possibly make it economically infeasible for a publisher to publish it and (*b*) it seemed clear that a number of people are primarily interested in only one of these two broad areas and not in the other. The other book was completed at an earlier date than the current work and is entitled *Nonintellective Correlates of Grades, Persistence, and Academic Learning in College: The Published Literature Through the Decade of the Sixties.* (ACT Monograph No. 14, The American College Testing Program, 1974).

The Purposes of the Book

Great care was taken to make the literature coverage as complete as humanly possible. However, although the attempt was made to be comprehensive, this was *not* the primary purpose of the study. With the extreme breadth and complexity of the subject matter under focus, the volume of literature available, and the changeovers in personnel working on the project, some important contributions in the literature were undoubtedly overlooked or misplaced along the way.

Concerning the summaries of selected literature, it should be kept in mind that their purpose was *not* always to point out noteworthy quality. Some studies judged by the authors to be of lower quality than others *not* annotated were annotated for reasons such as unique approach, stimulating and thought-provoking conclusions, experimentation with specific criteria or predictor measures formerly overlooked, results unlike those for other similar studies (for which there must be a reason), utilization of uncommon statistics, etc.

The primary purpose of this book is to give the reader a "feel" for the research that has been done and to arouse thought concerning college nonacademic success. Many of the studies summarized in this book were found to be quite intriguing, and it is expected that the reader will be pleasantly stimulated by them. All kinds of issues are raised, commonly held assumptions are called into question, creative and unique approaches to research on college students are demonstrated, and exciting and/or untraveled research frontiers are pointed out. Numerous topics for future research on nonacademic outcomes of higher education are suggested. It is hoped that this book will stimulate more research studies that are quality oriented, creative, and relevant to important and practical needs of students and society.

In addition to raising questions and to providing some new insights about college students and college effects, this book is intended to provide comprehensive lists of sources for each criterion area. These reference lists should prove to be a valuable aid for interested persons who wish to delve further into the subject. Some of the research results are open to various interpretations, some of the studies have been replicated several times while others have never been replicated, and different studies considered in relation to one another can result in conclusions and insights not possible when the focus is on one study at a time.

By now it should be evident that educational researchers will be only one of a number of groups who should find the book useful. Interested practitioners such as college admissions officers, counselors, teaching faculty, and administrators should find it helpful; as should high school personnel such as guidance counselors and teachers who deal with college-bound students. The book may also be useful as a supplemental text in courses on college students, and graduate students interested in this area will find it of help in choosing a thesis topic and in planning their research designs.

The Organization of the Book

Each of the following chapters in this book deals with criterion areas of college success. A chapter has as many as five and as few as two sections which cover related criterion areas. Every section of a chapter has an introduction which discusses the criteria in that area, followed by approximately 10 summaries of selected literary works in each area. The last chapter includes miscellaneous criteria and criterion areas for which little research literature was noted. Because of the lack of published research studies in most of those sections, plus the already great bulk of the book, selected summaries were not included in the last chapter.

A concerted attempt was made to keep the study summaries more than just annotations that list the results of a study. It was considered desirable to give the reader as much of a feel as possible for the total study being reviewed. Because of this, many of the summaries tend to seem much longer than typical annotations; but it is believed that the lack of brevity has resulted in a positive rather than a negative contribution.

Rather than going to a cross-reference system for articles assigned to more than one criterion category, multiple listings will be found in the book. This approach increased the length of the reference lists, but it was felt that this disadvantage was more than offset by the ease in usage that results when the reader has a complete listing of references for a given section.

Some articles have the criteria of that section only as a peripheral concern of the study. It was considered important to also include such articles because peripheral studies are often overlooked by researchers. Even though the study may have included the criterion of concern only as an aside, it does possibly add additional evidence to the literature on that topic. In addition, it is possible that such a peripheral study may extend the findings of other studies (that focus on the predictor) to a different population of students. One advantage of a wide-ranging multifocus review of literature like this is the increased probability that such peripheral studies (which give no hint of the topic in their titles) will be found.

SUCCESS VIEWED AS INTELLECTUAL DEVELOPMENT

The published studies dealing with intellectual development defined as "academic learning" or "acquisition of knowledge and understanding" have been reviewed in a monograph concerned with those traditional criteria of college success.[1] However, growth on the cognitive factors of originality, creativity, abstract thinking, and analytic skills could also be considered intellectual development. These criteria of development along with the development of intellectual attitudes and appreciations constitute the focus of this chapter.

The factors reviewed in this chapter may be less traditional criteria of college intellectual success than is "acquisition of knowledge and understanding," but in liberal education they have always been seen as having primary importance. In fact, some would consider "learning for learning's sake" and "knowing how to think and reason" to be much more important than the acquisition of knowledge and understanding. Certainly they are a prerequisite to real comprehension, application, analysis, and synthesis of academic knowledge, which are generally considered to be included in the term "academic learning."

Development of an Intellectual Outlook and Attitudes

Almost all colleges presumably make efforts to stimulate their students' liking for the intellectual. This concept always has been central in liberal education and has been a major reason for the emergence of special curricular programs (e.g., Hutchins' Great Books Program) and the innovative "experimental colleges." In all of these efforts, environmental stimulation is considered to be a key to the development of intellectual interests and appreciations.

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[1] O. T. Lenning, et al; *Nonintellective correlates of grades, persistence, and academic learning in college: The published literature* (ACT Monograph No. 14, Testing Program. Iowa City, Iowa: 1974.

intellectuality has generally been considered an elitist concept. Intellectually oriented people often have seemed to lay people to look down on "others not so inclined," and the general public has tended to react by being suspicious of and rejecting intellectuality. The failures of higher education and/or the challenges to higher education in this area are outlined in Hofstadter's recent book (1969) on anti-intellectualism in American life.

Very little research in higher education has dealt with the impact of colleges, programs, and methodologies on intellectual outlooks and attitudes. Reasons for the apparent lack of interest in evaluating such impact are unclear. Perhaps persons interested in such outputs think it to be obvious from their observations and interview contacts that such impacts are occurring or are not occurring. On the other hand, people interested in such outputs may merely not have an evaluation and research orientation. Of course, it could also mean that they are thoroughly committed to such a goal and are afraid of what the research and evaluation results would show.

Success Viewed as Development of an Intellectual Outlook and Attitudes: Selected Annotations

Block and Yuker (1965) developed a brief scale to measure intellectual orientation among college students. The scale had previously been found to be highly correlated with a number of academic measures such as grade point average, curricular major, and year in school. The goal of this study was to search for nonintellectual correlates of intellectualism as measured by the scale.

Significant relationships were found between scores on the scale and attitudes toward education, scores on the Allport-Vernon *Study of Values*, authoritarianism, ethnocentrism, patriotism, and measures of attitude change. Additional significant relationships were found with political affiliation, religious affiliation, and degree of religiousness.

Brown (1968b) attempted to determine the effects of having college dorm floors numerically dominated by students with similar academic majors and the effects of this type of program on the intellectual discussion held on the floors. He also attempted to find out whether an informal intellectual program can influence student attitudes and activities. The sample included 325 freshmen at a small private men's college in the Midwest who were homogeneous in age, sex, religion, geographic origin, socio-economic background, etc. Instruments used included the Thinking Introversion Scale and the Theoretical Orientation Scale of the *Omnibus Personality Inventory* (OPI) and a sociometric questionnaire.

Students were assigned to the dorm floors so that the ratio of humanities to science students was four to one on two floors with a reverse ratio for the two other floors. On two of the floors (one science dominated and one humanities dominated) an Enrichment Program of talks and discussion provided a format that allowed informal contact with faculty who participated as resource persons or discussion stimulators. Sessions were held in the lounges with refreshments served.

Three-factor analysis of covariance was employed for treatment of the OPI data, and chi-square analysis was employed for the questionnaire data. The analyses revealed that the dominance of vocational groups did have a significant impact on feelings about college major (as indicated by changes in major), satisfaction with college, and social interaction. College peer groups apparently can change group and individual attitudes, and friendship patterns among college students did tend to be influenced by the proximity of students with similar interests and aptitudes. However, the most significant findings had to do with the Enrichment Program. The Enrichment Program did have a definite effect on the intellectual attitudes of students. For a number of criteria, however, the program had a differential effect for science and humanities students. It would appear that an informal, intellectually-oriented residence hall program can have a real impact on students, a finding which suggests that the residence hall can be viewed as an educational unit as well as a living unit. The author thought that a possible reason for this finding is that students may be more open to new ideas in an informal setting close to their living quarters than they are in a formal classroom environment.

Brown (1968a) used 390 freshmen at a small liberal arts college to explore the relationship between the intellectual attitudes of college students, their participation in intellectual activities, and their academic achievement. Riesman and Jencks (1962), among others, has suggested that academic inquiry on campus can be distinguished from intellectual inquiry. Their contentions were that students pursuing academic interests are merely trying to increase their knowledge within a discipline, while those interested in intellectual inquiry focus on "growing in wisdom." In the one case a good GPA and meeting course requirements are the focus, while in the other case the focus is on broadening, understanding, and improving the ability to think.

Intercorrelations were computed for GPA; the four intellectual orientations scales of the *Omnibus Personality Inventory* (Thinking Introversion, Theoretical Orientation, Estheticism, and Complexity); and four intellectual scores on an activities check list (Intellectual Activities, Intellectual Magazines, Intellectual Books, and Intellectual Discussion). Modest, but statistically significant, correlations were found between all of the intellectual orientation scales and the intellectual activity scales. Of all eight scales, scores on only the Theoretical Orientation attitude scale correlated significantly with first-year GPA

($r = .16$). The most successful students academically were more likely to be more rational than were the less successful students, but not more interested or active in cultural or intellectual pursuits.

Another finding of the study concerned the pattern of intercorrelation for the eight scales. The pattern suggested that an intellectual orientation was more likely to be reflected in reading interests than in activities such as attendance at plays, concerts, lectures, and intellectual discussions and "bull sessions." The author offered this pattern as support for the typical stereotype of the intellectual as being more reflective than he is active.

Campbell and Magill (1968) attempted to determine the relationship between Glock's religiosity dimensions and intellectuality for a 20% random sample of students at two Eastern Canadian universities—one with a majority of Protestant students and the other with a majority of Catholic students. Several earlier studies had presented a consistent picture of anti-intellectualism or lack of intellectual disposition among Catholics, characterized by authoritariansim, dogmatism, and dislike for ideas and critical thinking. The question was whether this anti-intellectualism was the result of religiosity or other factors such as economics.

Four of Glock's religiosity dimensions—ideological, ritualistic, experiential, and practical—were operationalized by developing a 15-question scale. The combination of scores for the four dimensions served as a composite index of religiosity. Religiosity scores were related to scores on three scales measuring intellectual orientation: Rokeach's Open and Closed Mind Scale, a specially prepared Intellectual Values Scale, and the Theoretical Value Scale of the Allport-Vernon-Lindzey *Study of Values*. The data revealed that there was a consistent inverse relationship between religiosity (the composite score or the score for any of the four dimensions) and all three indicators of intellectuality.

Davis (1963) compared differences in proportions of college seniors who endorsed intellectual values (true value climate) and proportions who perceived their classmates as having intellectual values (perceived value climate). A questionnaire was given to a sample of 33,982 graduating seniors at 135 American colleges and universities.

High quality, private, and small institutions had higher proportions of seniors endorsing intellectual values, while lower quality, public, and larger institutions had lower proportions. Students in technological schools were quite low in intellectual values. The perceived value climate was directly related to the true value climate. Students' perceptions of value climates were distorted toward their own value positions, and students with high grades tended to give lower estimates of the intellectuality of their campuses than did students with lower grades. In terms of school characteristics, there was a regional difference in the proportion of colleges whose climates were seen by the seniors as more or less intellectual than the true value distributions predicted.

Gottlieb (1962) studied the influence of academic achievement as a mediating factor in the prediction of academic values and attitudes from social class. A total of 283 randomly selected freshman males at a large Midwestern state university and 115 freshman males at a smaller Midwestern private college constituted the sample. A questionnaire was used to gather data on experiences, attitudes, expectations, and values.

Since previous research had indicated that parental influences play a significant part in the lower-class child's educational and occupational aspirations, it was deemed surprising that only one-third of the lower-class students mentioned parents as influencing their decision to attend college. The fact that these lower-class students obtained encouragement from high school personnel and were in college despite limited parental support suggested that they were a highly selected group, and examination of their ability level in comparison to that of the other two social class groups confirmed this. A general finding was that where students most departed from expected patterns—lower-class high achievers and upper-class low achievers—the greatest support from teachers and guidance counselors occurred.

Concerning an intellectual orientation, students from the lower class were more concerned with occupational training and desired professors (indicated on an ideal professor rating scale) who facilitated such goals. It was clear that a desire to move away from the father's occupational position is what moves such boys "along the academic path." This finding suggests that such basic needs must first be met before the college can hope to instill intellectual values, as opposed to academic values, in these students.

Gottsdanker (1968) used random methods to select 75 men and 75 women representative of high-ability freshman students (as measured by the *School and College Ability Tests*) and 75 men and 75 women representative of the total 1964 freshman class at the University of California, Santa Barbara. The author wished to study the combined effects of sex and ability level on intellectual orientations and interests as measured by the *Omnibus Personality Inventory* (OPI).

When *t*-test and profile analyses of the OPI scale means were conducted, it was found that important differences existed for the two sexes, with women alone accounting for combined-sex group differences between the two ability levels. Although the gifted men had slightly higher intellectual orientation score means than did the typical men, none of the mean differences was statistically significant. On the other hand, the gifted women had significantly greater interest than did the typical women in theoretical problems, independence, and self-initiated intellectual endeavors. When the two sexes were compared, it was found that men had a significantly greater desire for direct expression of their impulses than did women; while the women had significantly greater desires for harmonious and artistic modes of thinking than did the men.

One possible hypothesis of the findings is that gifted women have a weaker vocational commitment than lower-ability women, which allows for a more abstract and less practical orientation. Another possibility is that there are sex differences in the rate of development of academic interests. Furthermore, the high ability may have caused the high intellective interests in the one group of women, the independence and intellectual interests may have resulted in the high ability, or the OPI may merely have an over-representation of the kinds of items which appeal to bright women.

Heist, McConnell, Matsler, and Williams (1961) compared two groups of National Merit Scholarship winners and near-winners who were selected on the basis of attendance at educational institutions ranked as high or low in the production of future scholars and scientists. Students attending "low-productivity" colleges were drawn at random and paired with the students attending "high-productivity" colleges on the basis of *Scholastic Aptitude Test* scores. The resulting groups, matched on academic ability, each contained 50 males and 41 females.

Four hypotheses pertaining to expected personality differences between the matched groups were explored by means of the *Omnibus Personality Inventory*, the Allport-Vernon-Lindzey *Study of Values*, and the *Strong Vocational Interest Blank*. Differences between the two groups were examined using *t* tests. In general, the hypotheses were supported; and it was concluded that students of high ability attending highly productive institutions had a pattern of traits, values, and attitudes which was more closely related to serious intellectual pursuits than did students of high ability attending less productive institutions.

Stern (1963) made institutional and student comparisons between a group of 11 colleges having high intellectual climate scores on the *College Characteristics Index* (CCI) and a group of 11 colleges having low intellectual climate scores on the CCI. Group mean comparisons were made on CCI scores; *Ac-*

tivities Index (AI) scores; *Scholastic Aptitude Test* scores; and the college characteristics of size, sex ratio, location, administrative control, programs offered, faculty-student ratio, finances, and tuition.

Stern's data indicated that students at the high-climate colleges had greater orientation towards scholarship at college entrance than did students entering the low-climate colleges. Factors other than student input seemed to make a difference in the student intellectual orientation, however. Included were faculty factors such as the absence of staff preoccupation with student custodial care; faculty attitudes toward scholarship; the stress put on learning; the ability to motivate students; the respect for the students' integrity and efforts; personal contact with students; and encouragement of independence, self-confidence, and freedom of expression. Other important college factors noted were campus space (also dollars) per student, peer relationships, administrative control, curricular programs offered, and emphasis on the practical.

The study also explored differences in student characteristics between the group oriented toward scholarship and the low-orientation group. The high-intellectual-orientation students were more psychologically oriented, gave all of their energy to whatever they were doing, liked doing things according to their mood, disliked authority, and rejected all common forms of superstition. The lows liked competition; were more practical-oriented and worldly; felt closer personal ties with other students at their school; accepted authority from others and were eager to assume such authority themselves; and, on the whole, had dynamics similar to those of business executives.

The experience of the University of Houston (**Zwicky**, 1965) was contrary to findings of an earlier published study which had concluded that freshmen responded best to social or informational activities during orientation week and that "efforts to increase the academic intellectual emphasis of the program apparently had little effect on the freshmen." The Houston college officials thought that the earlier findings might no longer apply because there was no greater emphasis on intellectualism and intellectual endeavor in the high schools, with accelerated or major works courses common. In addition, the competition to get into college was now keener.

The theme for the orientation program was "What is happiness?" which involved questions such as "What is the meaning and purpose of my life?" and "How does education help one to live a better life?" etc. A 22-page booklet of readings about happiness, ranging from Tolstoy's happy man in the country to Skinner's well-adjusted member of a nearly automated society, was sent to students during the summer; and they were invited to participate in the 2-day orientation program. Almost all full-time registrants, 2,200 compared to only 250 who had participated in the previous year's "Kitten

Kickoff" (a name suggestive of a fun-and-games atmosphere), participated in the sensory sessions, small group discussions, and receptions. Prior to the orientation, special instructional sessions were held for the faculty members who would be involved; and upper-class students were trained to be counselors.

Responses to a post-program survey questionnaire revealed that students considered the small group discussions especially valuable. The orientation program was the students' first glimpse of a college professor in his environment, and the students considered it to be "an exciting prelude to four years." The invitation to faculty participants had suggested that they "give direction and guidance in the light of their own interests, background, and opinions—letting the students see how an academician reacts to the issues brought up in the readings, giving the new college students some insights into the motives and ideals of faculty members, and welcoming them into the intellectual fraternity."

Development of Cognitive Creativity, Originality, Abstract Thinking, and Analytic Skills

The intellectual development expected of college students usually includes more than the acquisition of knowledge and understanding and the learning of principles. Most knowledge is soon forgotten unless it is continually used or periodically reinforced by some other means. Understanding and the learning of principles depend on the ability to reason things through and to think logically, and they are useless if they cannot be applied to new situations. Therefore, the development of thinking and analytic skills, the so-called "furniture of the mind" emphasized by long-time proponents of liberal education, are almost universally considered to be goals of a college education. However, some colleges emphasize these goals much more than others, especially when it comes to actual practice.

Among others, Bartlett (1958) has distinguished two types of thinking: closed-system thinking and adventurous thinking. Closed-system thinking involves the ability to manipulate data, and it proceeds according to set rules and conventions. The syllogism is the classic example of closed-system thinking. Most colleges would claim that they try to help their students improve in the ability to sort out proper stimuli, to perceive stimuli accurately, to think things through logically, and to arrive at a valid, well-thought out solution or judgment. It takes practice and training, even for adults, to keep from rationalizing and from being biased by emotions and/or semantic problems. Another term commonly used in educational circles is "critical thinking." Hullfish and Smith (1961) coined the term "reflective thinking" to describe the same process.

"Creative thinking" is another name for intellectual innovativeness or adventurous thinking. Such thinking is *not* guided by pre-established rules and conventions. Over the years there has been controversy about whether or not creative thinking is a component of aptitude or intelligence. (Several research studies regarding that issue have been included in this section.) In addition, some people consider cognitive creativity to be synonymous with artistic creativity. Some of the same characteristics do seem to be involved. However, since numerous persons with acknowledged cognitive creativity do not demonstrate artistic creativity and vice versa, studies of artistic creativity are listed separately in Chapter 6.

What is creativity? Pietrasinski (1969) provided one possible definition:

> Creativity is the antithesis of routine, of stereotyped and habitual imitation of existing patterns of performance. Creativity is the source of ideas and objects which are ever new. This does not mean that any product of the mind deserves to be labeled creative. If a child or an expert liar invents fancy stories, or a lunatic paints extravagant pictures, we will not recognize this as creative work. Why not? Because their products have no real, that is, no social value and their only function is to give personal satisfaction to their authors. By creativity we usually understand an activity resulting in new products of a definite social value [p. 114].

"New" can mean new to society's fund of knowledge, or it can merely mean new to the person conceiving the idea. For example, Ray (1967) uses the second meaning of "new" in defining "originality," usually considered either synonymous with or a component of creativity. ("Imagination" is another such component.) He states:

> Critical thinking examines existing sets of ideas and conclusions . . . Original thinking produces new ideas . . . It should be understood that *new* means new to the thinker, whether or not someone else has already conceived that idea. Good students think about the material they read in textbooks, and if a student draws a conclusion from the material on one page, then reads the conclusion on the next pages, he is still to be credited with originality since he thought of the idea before he read it [p. 3].

Abstract thinking and theoretical thinking are also covered in this section. These thinking skills are supposedly emphasized in college examinations. They would seemingly include both creativity and reasoning abilities.

Few studies were found which specifically examined changes in analytical or abstract thinking. Studies using scores on end-of-course examinations as criteria were not included because such criteria cover more than those skills and may be based primarily on knowledge and recall. Furthermore, such studies were covered in the earlier monograph on the more traditional criteria.

Many studies were examined which explored creativity. Most of the research on creativity used elementary and secondary school students as subjects. It was felt that creativity at those levels was probably similar to creativity at the college level, and so those studies were also included in the reference list for this section.

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Success Viewed as Development of Cognitive Creativity, Originality, Abstract Thinking, and Analytic Skills: Selected Annotations

Bednar and Parker (1965) attempted to determine whether students enrolled in the honors program at Brigham Young University were significantly more creative than were similar students not enrolled in the program. The sample included 38 freshmen, 31 sophomores, and 20 juniors from the honors program; and they were matched with an equal number of students not enrolled in the honors program. The groups were matched on *American College Test* scores, year in college, sex, and college in which they were majoring. The criterion instruments were three of Guilford's creativity tests that measure four factors of creativity: Redefinition, Adaptive Flexibility, Spontaneous Flexibility, and Ideational Fluency.

The authors conducted two-way classification analyses of variance and concluded from the results that creativity did not seem to be associated with being enrolled in the honors program. When year-to-year creativity score mean comparisons were made, it was found that means for both groups decreased slightly, but not significantly, from one year to the next on all four creativity scales.

Dentler and Mackler (1964) conducted several studies to explore the effects of interpersonal relationships and personality traits on the development of original ideas. (Originality was only one of ten measures of creative thinking which they had obtained previously in experimenting with a group of 235 undergraduate students.) For the first study, 120 University of Kansas undergraduates with records of high academic achievement were administered Torrance's *Tin Can Uses Test* (a measure of originality) and the *L Test of Paranoid Anxiety or Pro-Tension.* Interpersonal style of the test administrator was the experimental variable. The administrator's social manner, tone of voice, gestures, and preliminary remarks about the study were varied systematically for the different groups of students.

Analysis of variance was used to make group comparisons, with sex and anxiety controlled for the analysis. Results were that those who scored low on paranoid-anxiety exhibited the greatest originality. In addition, the psychologically safe condition in which the test administrator was friendly and pleasant as he announced casually (but with conviction that he "knew" they would do well on the tests), produced three times as many original responses as three control conditions.

A second study by the authors compared social relationships with originality for a group of 37 high-achieving women in a cooperative-type dormitory. No relationships between a number of sociometric indicators and originality were noticed.

A third study involved correlating scores on three Cattell *16 Personality Factor* (16 PF) scales and five *Minnesota Multiphasic Personality Inventory* (MMPI) scales with originality scores for 64 Dartmouth and Smith College undergraduates. Only two of the scales had significant correlations: Cattell's Bohemianism Scale (degree of conventionalism versus indifference to conventions in social relations) and his Radicalism Scale (personal disposition to accept or to take extreme positions).

Eisenstadt (1966) investigated the problem-solving ability of creative and noncreative college students. The sample included 231 liberal arts students at the City College of New York. In addition to a biographical questionnaire, the author also used Guilford's *Alternate Uses Test*, Guilford's *Consequences Test*, and an anagram test which determined a creative and a noncreative group. Rebus puzzles comprised the problem-solving task, and they were completed under neutral and threat conditions by students in four subgroups formed for the purpose of controlling sex and practice effects.

A three-dimensional analysis of variance was applied to the data. Students in the creative category were found to have greater ability to observe accurately as evidenced by faster solution time and increased number of solutions under an incomplete information condition. However, the results failed to confirm the hypothesis that creative individuals respond differently in a threat situation. Another significant finding was that creative students gave up more readily than did noncreative students on problems that they could not solve.

Garwood (1964) related personality factors to creativity for 36 male science majors chosen (using a creativity test battery) out of a population of 105 male science majors at three California colleges. Eighteen of the subjects were classified as having higher creativity and 18 as having lower creativity.

The *California Psychological Inventory* (CPI), the *Thematic Apperception Test*, and the *Interpersonal Check List* were used as personality measures.

Among the statistical techniques used to compare the two groups were *t*-tests and analysis of variance. It was found that the high-creativity group scored lower than the low-creativity group on socialization, self-control, desire to make a good impression, identification with the mother, and affection. The high-creativity group scored higher than the low-creativity group on a composite measure of personality factors which predispose toward originality and on the CPI cognitive flexibility, dominance, sociability, social presence, and self-acceptance scales. In addition, the authors concluded there was "clear empirical evidence" that higher creativity is associated with a greater integration of nonconscious with conscious concepts.

Holland (1961b) attempted to test a number of hypotheses about variables often assumed to be associated with academic and creative achievement. The sample included 649 males and 345 females who were National Merit finalists; their parents also participated in the study. Instruments used included Gough's *Differential Reaction Schedule*, Barron's *Inventory of Personal Philosophy*, the *Mastery Scale*, the *Differed Gratification Scale*, the *Vocational Preference Inventory*, Ghiselli's *Self-Description Inventory*, and the *Creativity Activities Scale*. The mothers filled out the *Parental Attitude Research Inventory*, and the fathers gave information on family background and ranked nine goals and traits in the order in which they wanted their sons and daughters to possess them.

Creative performance was the criterion of concern here and consisted of a creative science achievement scale and a creative arts achievement scale. Correlational analyses suggested that creative performance at the high school level occurs more frequently among students who are independent, intellectual, expressive, asocial, and consciously original. The creative performers also tended to have higher aspirations for future achievement.

Lehmann (1963) studied changes occurring in college students' critical thinking ability, stereotypic attitudes, dogmatism, and values over a 4-year period, from the freshman through the senior year. A total of 1,051 college students were tested as freshmen and again as seniors using the *Inventory of Beliefs, Test of Critical Thinking, Differential Values Inventory, Rokeach Dogmatism Scale*, and an experience inventory specifically designed for the study.

Findings of the study were that stereotypic attitudes and unreceptivity to new ideas decreased. Students as seniors appeared to be more outerdirected than they were as freshmen. There was a significant improvement in critical thinking ability. These changes applied to both men and women, and interviews during the sophomore and junior years revealed that most of the change took place during freshman and sophomore years.

The author felt that since there was no noncollege control group for this study, it could not be claimed that these changes were related to the college education. However, the sophomores and juniors interviewed expressed the opinion that informal, nonacademic collegiate experiences such as friends, persons dated, "bull sessions," etc., did help induce the changes. They indicated that the formal academic experiences, such as the courses and instructors, did *not* help induce change until after they had entered their major.

Levy (1968) compared the effectiveness of various treatments in helping subjects learn to play the role of an original person. The hypothesis of the study was that originality is better conceived as a form of role-defined behavior than as a form of operant behavior as claimed by Maltzman (1960).

The sample for the study included 57 male and 15 female students enrolled in an introductory psychology course at Indiana University. Instruments used included Holtzman's *Ink Blots*; a word association list; and a set of six 7-point bipolar graphic rating scales designed to measure role perception (friendly-unfriendly, unimaginative-imaginative, adjusted-maladjusted, unoriginal-original, passive-active, and stable-unstable).

The experiment was labeled "Role Learning" on the subject sign-up sheets. After the first 25 words of the word-association list were administered to find the subjects' operant level, they were requested to take on another person's personality and to respond in everything like the person assigned. Then a 50-word training list was administered under treatment conditions: (*a*) the Reinforcement Group received oral reinforcement for responses made; (*b*) the Role-Model Group was presented a sample of the behavior representing the role members were to adopt—responses given by not more than one out of 500 persons in a previous study; (*c*) the Role Instruction Group received an oral description of the person members were to be, e.g., "enjoys doing things in a unique and novel way..."; (*d*) the members of the Reinforcement-Plus-Role-instruction Group, for which qualities of the role were emphasized, were *not* explicitly instructed to make original responses; (*e*) the Control Group, which was presented the 50-word list, received no special treatment or instructions.

All treatment groups gave significantly more original responses on a follow-up 25-word list than did the control group. Coordination of instructions with reinforcement (the fourth treatment group) was the most effective in increasing the rate of uncommon word associations. The results were interpreted as supporting the proposed conception of originality.

Mouw (1969) attempted to determine the effect of dogmatism as defined by Rokeach's scale on five levels of cognitive process as described in Bloom's book on a taxonomy of educational objectives (1956). The sample included 87 students at the University of South Dakota enrolled in a teacher-education program. Instruments used included the *American College Tests* (ACT), *Rokeach Dogmatism Scale*, and a taxonomy test developed by Kropp and Stoker. The students were split into two groups using median ACT score as the dividing point; and then each group was ranked according to dogmatism scores and split into three subgroups, each including 14 students. Five cognitive process criterion scores that had each been converted to *T* scores were available for every student: Knowledge, Comprehension, Applications, Analysis, and Synthesis.

Three-factor analysis of variance was conducted, with the three factors being aptitude (two levels), dogmatism (three levels), and cognitive process (five levels). Then direct comparisons were made between the high-dogmatic and low-dogmatic groups over the two levels of aptitude. These analyses suggested that dogmatism should be considered in the educational process, especially when the emphasis is on self-directed learning or problem solving. Students in the open-minded category according to Rokeach's scale tended to increase in mean performance as the tasks became more complex or autonomous. Close-minded students tended to decrease in mean performance as the task became more autonomous.

Nichols (1964) studied 278 students who had been National Merit Finalists and who took the *Graduate Record Examination* (GRE) a few months prior to graduation from 91 colleges to see what effects the colleges were having on GRE scores. The effects of 31 student-input characteristics on four different GRE scores (GRE Verbal, GRE Quantitative, GRE V+Q, and GRE V-Q) was partialed out using a sample of 265 students. Scores on 29 college characteristic variables were then assigned to the 278 students in the sample and multiple correlations computed for these variables with the GRE residual scores (GRE scores adjusted to cancel out the student characteristic effects) as criteria.

College characteristics did have an effect on GRE scores, but *not* the effect that had been expected. Variables such as faculty-student ratio, library books per student, the average ability level of the student body, and the affluence of the college were all found to be unrelated to the residual GRE scores. This suggests that a college which has more of the things thought to promote student learning does not necessarily have a greater effect on *both* GRE Verbal and GRE Quantitative scores. There was, however, a pronounced tendency for colleges to separate the GRE Verbal and GRE Quantitative scores, raising one while lowering the other; and this tendency held for even those variables that did not have a statistically significant effect.

Rather than affecting the overall level of intellectual functioning, the effect of college appeared to be one of directing the students' abilities into verbal or quantitative channels.

Concerning the significant relationships, Northeastern men's colleges tended to increase Verbal relative to Quantitative scores, while technical institutes and state universities tended to have just the opposite effect. The student's major field of study had similar effects, but most of the differences between colleges remained when field of major was controlled. Overall, the impact of the college on GRE scores was small compared with the impact of student characteristics present at college entrance.

A sample of 159 Amherst College freshmen were randomly selected by **Ridley and Birney** (1967) and assigned to experimental and control conditions for purposes of exploring the effects of training procedures on originality. Two subtests from Guilford's test battery on originality, the *Unusual Uses Test* (UUT) and the *Plot Titles Test* (PTT), served as the originality criteria for the study.

The first training procedure used was heuristics training, where a booklet of strategies (principles) thought to be helpful in thinking of unusual uses for things was read along with several examples for each strategy. After each strategy in the pamphlet was covered, the students were given two or three minutes to practice on their own. After the training period examples were requested from the group, then a short practice test was given. Then the UUT and PTT were administered, after which analysis of variance (ANOVA) procedures on the data indicated that the training had a significant effect on both measures of originality. Follow-up work with five different students receiving extended heuristics training (rather than the short-term training done previously) suggested even more of a marked improvement on UUT scores.

Word-association training (WAT) was given to the other experimental groups. It was found that WAT did have an effect on both criterion measures, but that extended WAT did *not* lead to significant improvement over short-term WAT. In addition, students were later shown the heuristics books used by the other experimental group and asked if they had employed any of the strategies in completing the UUT and PTT. Their responses that they had done so conflicted with a stimulus-response interpretation and with Maltzman's hypothesis that WAT produces mediated generalization from uncommon responses in one hierarchy to those in another.

There were two experimental groups for each training procedure so that the effects of instructing the students to be original when they took the criterion instruments versus the effects of not so instructing the students could be studied. It was found that the instructions had a significant effect on UUT scores but not on PTT scores for both training procedures. It was concluded that "a person can adjust his performance to be more original when it is clear that originality is called for."

Whittemore and Heimann (1966) were interested in exploring whether unstructured counseling or structured counseling using the Maltzman operant training technique could increase originality responses in college students. A total of 80 high-ability college students were given three paper and pencil creativity tests *(Minnesota Test of Creative Thinking, Consequences Test*—Parts I-V, and the *Anagrams Test)*; and those 10 having the highest composite score plus those 10 having the lowest composite score were dropped from the sample. From the remaining 60 students, 3 groups of 10 students each were randomly selected. Then creativity averages for the three groups were checked to make sure the groups were equally creative. One group was subjected to "structured counseling using the Maltzman verbal reinforcement technique," a second group was assigned to have "unstructured counseling," and the students in the third group (control group) were asked to postpone their counseling for eight weeks.

Skilled counselors counseled students in the two experimental groups on their vocational, educational, or personal problems in seven weekly sessions. Then the students in all three groups were administered six measures of creativity in an assembly setting. One-way analysis of variance was conducted separately for each criterion measure to see if the group means differed. The structured group scored significantly higher than did the other two groups on the Maltzman Free Association Test and the Unusual Uses Subtest of the AC Test of Creative Ability (AC), but not on the AC Quantity subtest, the AC Uniqueness subtest, the Sounds and Images Test, or the Remote Associates Test. No statistically significant differences were found between the unstructured counseling group and the control group.

Windholz (1968) related temperament, interests, and values to creativity and intelligence for 222 undergraduate students enrolled in introductory psychology courses at the University of North Carolina at Charlotte. Scores on six divergent tests, semantic in content, were converted to *T* scores and then summed to give a creativity score for each student. Similarly, scores on six convergent tests, semantic in content, were converted to *T* scores and then summed to give an intelligence score for each student. The creativity score distribution and the intelligence score distribution were cut at their respective medians to give the following four groups of students: High Creativity and High Intelligence, High Creativity and Low Intelligence, Low Creativity and Low Intelligence, Low Creativity and High Intelligence.

The dependent variables for the study consisted of scores on the *Guilford-*

Zimmerman Temperament Survey, the *Kuder Preference Record*, and the Allport-Vernon-Lindzey *Study of Values*. A 2 x 2 analysis of variance design that allowed unequal numbers of cases in subclasses was used to make group comparisons on the 26 different traits of temperament, interest, and value. Higher intelligence was found to be associated with greater emotional stability, lack of hypersensitivity, and preferences for aesthetic (but not religious) experiences. Higher levels of creativity were related to higher levels of interpersonal relationship, literary and musical interest, and aesthetic experiences. Not a single significant interaction effect was found between creativity and intelligence for any temperament, interest, and value trait.

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Chapter 3

SUCCESS VIEWED AS PERSONALITY DEVELOPMENT AND ADJUSTMENT

Parents oftentimes send their sons and daughters off to college with the expressed hope that the college will help them to "grow up." If the young people come back more mature, responsible, and self-confident, the parents will conclude that the college helped their children to develop in this area (even if age is primarily responsible). Students also look upon college as a place they can grow as a person—in maturity, responsibility, autonomy, flexibility, self-confidence, and self-acceptance. In addition, this is the first time many students have been away from home for long periods of time; and just adjusting to being more on their own and to the college environment is often seen as a real accomplishment by both them and their parents.

The college itself also sees personal adjustment and personality development as one of its purposes. In fact, many college catalogs specify such institutional goals and purposes.

Development of Maturity, Responsibility, Autonomy, Flexibility and Other Personality Change

There are two broadly defined ways of viewing personality: (*a*) as something which influences behavior or (*b*) equating personality with behavior itself. Most American behavioral scientists have been strongly influenced by European schools of thought and tend to stress the integrative configural aspects of personality. They see it as something which influences behavior. This particular way of viewing personality has given rise to several approaches all aimed at explaining personality. Of these several approaches, the situational one is most applicable in terms of colleges affecting student success. This approach emphasizes the immediate environment in which a person finds himself, and the focus is on learned roles, e.g., adulthood.

Most studies of personality change in college students have assumed that the college experience was a factor in bringing about the changes, e.g., the observed changes in autonomy, authoritarianism, dogmatism, and independence. However, to date there has been little research done to determine if students would have changed in a similar way by not attending college.[1]

Developmental psychology has hypothesized and found some evidence to support the existence of a natural pattern of development through adolescence, with children reaching various developmental plateaus at different ages congruent with their psychological makeup and experiences. But the question arises about whether aspects of Havighurst's[2] (1952) developmental sequence, assuming it exists, could be just as effectively accomplished outside of the college. It may be asked whether the college experience will impede or accelerate different types of development in comparison to noncollege people in this age range.

To adequately cover the idea that personality development in college is part of an ongoing process rooted in development through childhood, a number of basic textbooks of the sixties dealing with personality development in general and theories of personality were included in this section. Some of them also discuss personality development during college. Persons not knowledgeable about the personality area will find these texts helpful to place college personality development in context. Several books have also been included that focus on the measurement of personality.

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[1] It should be mentioned that there are a number of problems with making change comparisons between college students and noncollege students, some which are methodological while others involve ethical and moral considerations. For one thing, those not going to college are such a diverse group and their post-high school experiences differ much more than do those in college. Furthermore, the noncollege groups (which may be differentiated by post-high school job categories) should be matched to the college group not only on age and sex but also on other important factors such as high school, family background, ability, and high school record. The university researcher might gain access to such data for the noncollege students through cooperation from the high schools from which his college students came, but the high school might consider it unethical to release such information to the researcher. Gaining the cooperation of the noncollege subjects would be a special problem, and their response rate might be quite poor in comparison with that for the "captive group" in college. In addition, the personality area is quite sensitive in the minds of many citizens. For example, the use of particular personality inventories might risk being charged with "invasion of privacy" from some quarters, while other people might consider some of the personality items immoral or unethical.

[2] Havighurst, R. J. *Developmental tasks and education.* 2nd edition. New York: Longmans, Green, 1952.

Success Viewed as Development of Maturity, Responsibility, Autonomy, Flexibility, and Other Personality Change: Selected Annotations

Beach (1966) studied personality changes in students over their four years at a church-related liberal arts college in Washington. He observed changes in scores on four scales from the *Omnibus Personality Inventory* (developmental status, impulse expression, social maturity, and schizoid functioning) as well as on the *F Scale* (authoritarianism) and the *E Scale* (ethnocentrism). Forty percent of the entering freshman class in 1961, a total of only 38 students, were retested at the end of the sophomore year and again at the end of the senior year on all of these measures.

When *t*-ratio comparisons were made between observed score means, it was noted that there was an increase in developmental status and social maturity for both men and women over the four years, with most of the change occurring during the first two years. No significant change over the four years was noted for the total group on impulse expression, but there was a significant increase reported for men. Decreases were found in schizoid functioning (especially in women and especially during the last two years) and in authoritarianism and ethnocentrism (especially in men and especially during the last two years).

Chickering (1964, 1967d) had each faculty member at Goddard College select five students who best represented what the faculty members considered a person with a high level of independence and had them describe the criteria used for selection. Then the whole faculty met to modify and to approve the pooled set of criterion-descriptive statements. The selected students were compared with their nonselected peers using results from a battery of tests and inventories. The group of 130 students identified by instructors as examples of independent students were not differentiated from the norm by intellectual factors, but were differentiated by nonintellective factors (scores on the *Adjective Check List*, the *Omnibus Personality Inventory*, and the *Survey of Study Habits and Attitudes*).

In general, personality characteristics (with the exception of the self-and ideal self-concepts), attitudes, values, and study habits did distinguish the independent student. The independent students scored higher on social maturity, originality, theoretical orientation, esthetic interests and sensitivities, liberalism, social relations, confidence in self in relation to others, study habits, and positive attitudes toward learning and toward teachers. They scored lower on impulse expression, emotional disturbance, eccentricity, and deviate thinking.

Next, the same procedures were followed to get criterion descriptions for outstanding development of purpose, after which they were combined with the independence statements. When the statements were grouped according to similarity of content, six specific variables of student development resulted: Venturesomeness; Interdependence; Resourcefulness and Organization; Goal Directedness; Full Involvement, Motivation, and Persistence; and Personal Stability and Integration.

Because Goddard College uses a system of written self-evaluations and instructor comments rather than grades, data were available for each semester to rate the students on each of the six variables. Scales from 0 to 10 were used, with 5 defined as the general expectation. Two raters independently rated 20 1964 Goddard graduates (with semesters randomly ordered) on each scale. The ratings for each variable were then pooled for the 20 students, and multiple-discriminant analysis with follow-up covariance analysis was conducted to ascertain whether change occurred, which scales changed the most, and the pattern of change according to semester.

Ratings on all six scales showed significant change. Ratings on Goal Directedness changed the most over the four years, followed by Personal Stability and Integration; Venturesomeness; Resourcefulness and Organization; Full Involvement, Motivation, and Persistence; and Interdependence. Overall, most of the change seemed to occur during the first two years. However, patterns differed for different variables: Goal Directedness and Personal Stability and Integration changed fairly evenly over the four years; Interdependence and Venturesomeness changed the most during the first two years; and Full Involvement, Motivation and Persistence changed the most during the last two years. The fourth semester seemed to be especially important for Goal Directedness, while the first and seventh semester seemed to be most important for Personal Stability and Integration.

From the results of the study, Chickering decided on four principles for student development at Goddard College which may also apply at other colleges: (*a*) Development occurs according to recognizable patterns which differ according to the kind of change under consideration. (*b*) Development occurs through sequences of differentiation and integration. (*c*) Development is congruent rather than compensatory, i.e., change occurs in all the areas and not in some at the expense of the others. (*d*) Development decreases as relevant conditions become more constant.

In his conclusion, Chickering (1967) says the following: "If the dimensions of development for students in an institution can be identified and patterns of change described, then questions concerning the nature of experiences to be introduced and the timing and location of their introduction can be answered more soundly. The existence of plateaus and points of regression suggest periods during the students' experience where enrichment of conditions or additional stimuli relevant to that vector of change might be helpful [p. 302]."

Chickering, McDowell, and Campagna (1969) administered the *Omnibus Personality Inventory* (OPI) to the entering freshmen at 13 small colleges with diverse programs and distinctive student characteristics. One group of students at each college was retested on the OPI after one year, while another group was tested after two years at the college. The samples were adjusted to insure proportional representation of men and women, and the effects of dropouts were examined prior to the analyses.

The researchers explored whether institutional differences would lead to differential personality development in college students. Institutional differences were revealed by responses to a college Goals Rating Sheet, responses to the *College and University Environment Scales*, and campus visits by 3-man teams (who attended various campus classes, locations, and activities and who talked with students, faculty members, and administrators). Observed personality score mean changes were calculated separately for men and women on each campus.

Increased autonomy, increased emotional awareness and expressiveness, increased esthetic sensitivities, and decreased concern for material success were found for all groups compared. Although different changes occurred on different personality scales, the amount of observed personality change was similar for all institutions and for men and women. This relationship was true in spite of the fact that each of these small colleges had distinctiveness and was relatively homogenous on student characteristics within the institution. (The colleges had sharply different goals, orientations, and programs.) Furthermore, personality score at entrance had no noticeable effect on the amount of personality score change; regression effects did *not* appear to exert substantial influence.

Constantinople (1969) desired to investigate Erickson's theory of personality development as it applies to college students. Erickson's theory proposes that there are eight stages in the development of the ego, each characterized in terms of polarities of basic attitudes which "develop as a result of interaction between the developing potentialities of the individual and the pressures and sanctions of the social environment [p. 358]." At each stage there is a developmental task which must be mastered by the individual, and the amount of success in resolving the task results in an orientation about himself and the world which will help to determine his success in the later stages. The college years are primarily concerned with stages 4-6: industry versus inferiority, identity versus identity diffusion, and intimacy versus isolation. The author hypothesized that significant changes would occur in these three areas from the freshman to the senior year; and it was felt that some changes for the earlier stages might be taking place, also, because of "the reevaluation of the self which accompanies a successful resolution of the identity crisis [p. 359]." Important sex differences were also predicted because the relationships between the developing potentialities of the individual and the nature of the social environment for the two sexes are quite different during the college years.

A total of 952 undergraduate students from all four classes at one college constituted the sample for the study. A 60-item self-concept Q-sort measure, with five items reflecting successful and five items reflecting unsuccessful resolutions of each of Erickson's first six stages, constituted the criteria. For a portion of the sample, the questionnaire was re-administered after one year and again after two years. Analysis-of-variance comparisons cross-sectionally across classes and longitudinally across years for the same individuals revealed that an instrument originally designed to measure self-concept in college students could serve as a measure of the level of personality development. Males showed a clearer pattern of increasing maturity over the four years than did females, a finding which may be an indication that the college is more conducive to growth among males than among females. A reason suggested for this pattern is that college women often have identity conflicts (even if committed to a career field), because they feel they must make a choice between a career and marriage, while college men never have to worry about choosing between a career and marriage.

Elton and Rose (1969) related *Omnibus Personality Inventory* (OPI) score change over a 4-year period to measures of ability, to original status on personality test scores, and to curricular major for 114 Berea College men. Principle Components factor analysis of the scores for 980 University of Kentucky men was used to develop 6 factor weights which were applied to the pre- and post-test OPI scores at Berea College. This was done to insure that the OPI factor structure would not change from pre- to post-test, which would allow a direct comparison between the initial factor scores and the post-test factor scores. Then the pre- and post-test OPI scores were converted to six OPI factor-change scores for each student using a method for obtaining base free measures of change (to get "independent change scores") which had been developed by Tucker, Danmarin, and Messick.

It was desired to identify students with similar factor change scores. Therefore, cluster analysis was conducted using cross-products factor analysis, plus a follow-up with discriminant analysis. Three distinct groups were found which discriminated at the .001 level. Stated in the order of the amount of contribution to discrimination made, personality factors accounting for the differential change were masculine role, social discomfort, religious liberalism, nonconformity, and flexibility-independence. Scholarly orientation did not add significantly to the discrimination. The students in Group 3 became less stereotyped in their sex role, less uncomfortable socially, more liberal in their religious beliefs, more nonconforming, and more flexible and independent. On the other hand, Group 1 students went in opposite directions on these factors. Interestingly, the two most important change factors corresponded to the top three factors noted by Nichols (1967) in his totally different methodological approach to the problem.

When the group pre-test factor means and means on the *College Qualification Test* ability scores were compared using chi-square analysis, it was found that none of these variables differed significantly for the three groups. Student majors for the three groups were also compared. Although 35% of the students in Group 1 graduated in vocational majors versus 19% for Group 2 and 17% for Gcoup 3, the differences were *not* found to be statistically significant.

Although the pretest personality factors and the ability measures did not significantly discriminate among the three groups, the authors concluded that the three personality patterns noted by Chickering (1966) in describing the students at his small colleges did appear to apply. Group 1 students tended to be practical conservatives; Group 2 students tended to be altruistic conservatives; and Group 3 students tended to be intellectual altruists. Another conclusion by the authors was that diverse personality change may result from the interaction of one very structured college environment with a relatively uniform set of student input characteristics.

The study procedures were repeated by Elton (1969) with Berea College women. Only five personality-change factors were discovered for women, with scholarly orientation, nonconformity, authoritarianism, and social discomfort differentiating the three change groups found (listed in the order of discrimination power). The fifth factor, masculine role, was not a statistically significant discriminator of the three groups. As noted for men, the pretest personality factor scores, ability scores, and curricular major were *not* found to statistically differentiate the three groups.

Nichols (1967) studied factors related to changes in personality during the college years for a group of 640 high-aptitude undergraduate students enrolled at over 100 different colleges. Instruments used were the *16 Personality Factor Questionnaire*, *Vocational Preference Inventory*, and ten *a priori* personality scales. The instruments were administered prior to college entrance and again just before graduation. Analyses, which were conducted separately for each sex, included developing residual change scores (where variance in personality change due to student input characteristics has been controlled) and then subjecting them to factor analysis. The resulting six personality-change factor scores were then correlated with 18 characteristics of the college the student attended.

When mean changes were observed, it was found that vocational interests changed from initial diversity toward greater specificity resulting in a lowering of means. Men became more feminine. Both men and women became more aware of their impulses and more aware of their shortcomings and negative feelings, while they became less dependent on constricting defense mechanisms.

Concerning the six personality-change factors, Nichols named them Diversity of Interest, Femininity, Extraversion, Anxiety, Dominance, and Superego. No general factor emerged which represented a change permeating all aspects of personality. Rather, there were several areas which tended to change independently.

When the personality-change factor scores were correlated with the college variables, it was discovered that the affluence of the college was directly related to student extraversion for both sexes, while the predominance of students majoring in realistic and intellectual fields was directly related to change in anxiety. For women only, college affluence (as represented by per-student expenditure and student body ability level) was directly related to change in dominance. On the other hand, while colleges having many students in masculine curricula (e.g., engineering, business, and agriculture, etc.) tended to decrease the femininity of their women students, colleges where many students majored in social fields such as education tended to increase the femininity of their women students. For men, dominance was relatively decreased at colleges with a conventional and feminine curricula and at Catholic colleges.

Plant and Minium (1967) attempted to determine if nonintellectual characteristics change more over time for brighter-than-average students than for low-aptitude college students. A wide variety of personality test and retest data were used from earlier longitudinal studies of students at San Jose State College. Personality changes over two and four years were studied for males and females separately. Analysis of covariance was used with the retest personality scores adjusted for the initial personality test scores.

The comparisons between the high-and-low ability groups indicated the following: (*a*) Students of high aptitude tended to exhibit more personality changes over time than students of less aptitude and in the direction of the general college trend. (*b*) High-aptitude students tended to exhibit more "psychologically positive" personality development over time than did low-aptitude students. (*c*) The results were similar for males and females, for different samples of young adults, and for different kinds of nonintellective measures. (*d*) The results suggested that changes in personality characteristics reported by researchers as resulting from college attendance may be the result of the fact that these are bright students rather than the fact that they attended college. (*e*) The results indicated that aptitude should be controlled in any study of personality change and especially when change in college students is being compared to change in students who did not go to college.

Plant and Telford (1966) explored personality-change differences among groups of students who had completed varying amounts of attendance (including one group of students who never enrolled) at six public 2-year colleges in California. In 1960, a total of 4,506 students were tested on five scales of the *California Psychological Inventory* (CPI), on the Rokeach Dogmatism (D) scale, and on the Allport-Vernon-Lindzey *Study of Values*. After two years the same instruments were sent through the mail to these students' homes for a retest. About 600 were returned by the post office as undeliverable, and completed instruments were received for 1,793 of the students. When tests on initial data for respondents were compared with those for nonrespondents, significant differences were found for men on the CPI data and for both sexes on D data. The test-retest data for respondents were grouped by sex and completion of various amounts of college into three groups: those with no semesters, one or two semesters, and three or four semesters. Data for each group were combined across colleges and then group comparisons were made using correlated *t* tests. In addition, initial level on each scale was compared for the three groups using analysis of variance.

Although the subjects were self-selected, this study is noteworthy in that one comparison group included students who had no college experience. It was found that all three groups had greater achievement via independence, intellectual efficiency, and responsibility as measured by the CPI retest. Only the "no college" group lacked statistically significant change on sociability and self-control. All groups decreased significantly in dogmatism as measured by the D scale. There were one or more changes in values for all groups, and the change was significantly greater for those who had attended college for three or four semesters, but the change was not large.

Stewart (1964a) studied changes over four years in scores on the *Omnibus Personality Inventory* and the Allport-Vernon-Lindzey *Study of Values* for a group of 89 students at the University of California at Berkeley. Multivariate analysis of changes in mean scores over the four years showed a general decrease in authoritarianism, but it showed an increase in developmental status and reflective thinking. Females tended to become more interested in people and in reflective thought of an abstract nature, more independent, more flexible, more adventurous; and they tended to see themselves more as leaders. Males tended to become more concerned with social and moral issues, more independent, and somewhat more impulsive or impatient. Similarity of factor structure underlying the inventories over the four years was determined using canonical correlation, and it was found to have remained relatively stable despite the changes in mean scores and test-retest correlations.

Since cadets entering the U.S. Military Academy differ greatly in the extent of their athletic participation in high school, and since after entering the academy all cadets participate regularly in an intensive athletic program, *Werner and Gottheil* (1966) wondered if personality change would be different for former participants and nonparticipants. Out of 752 new cadets, 454 had won high school sports letters of some type and were therefore classified as the athletic group. A total of 191 of the cadets had not participated in athletics in high school and were thus classified as the nonathletic group. Cattell's *16 Personality Factor Questionnaire* (16 PF) was administered to both groups shortly after arrival on campus and again just prior to graduation. About 340 athletes and 116 nonathletes remained until graduation, and only these students were included in the study. Chi-square analysis showed that the proportion of graduates was significantly greater among the athletes than among the nonathletes.

Differences between the two groups on pre-test means, post-test means, and observed mean change were explored using *t* tests. Entering athletes had significantly different mean scores from those of entering nonparticipants on seven of the 16 PF scales, and the two groups differed significantly on six of the scales at graduation (with five of the scales showing differences both times). When comparisons of amount of group change were made, no significant differences were noted. Similarly, direction of change was the same for both groups on all scales except one. Despite four years of regular athletic participation, the nonathletic group was *not* found to change in 16 PF personality structure to a greater extent than the athletic group, in a different pattern than the athletic group, nor so as to become more like the athletes.

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Development of Optimal Psychological and Physical Health

Psychological adjustment and physical health are considered to be two complementary aspects of the overall well-being of the individual. In fact, problems in the one area can have important repercussions in the other area. College officials have long been concerned with optimum positive development of the individual in both the psychological and the physical realms. Indicative of this was the early formation (in 1920) of the American College Health Association, plus the publication of several books and monographs on this topic, e.g., the American College Personnel Association monograph, *College Health Services in the United States* (Farnsworth, 1965).

Further evidences of college concern in the physical health area are the provisions for student infirmaries and campus hospitals, required courses in health education, first-year physical education course requirements, organized recreational and fitness programs in intramural athletics and other activities, information programs on drugs and other abuses, off-campus housing requirements, etc. The growing ill-repute of the *in loco parentis* concept has radically changed some of these programs, but colleges retain a concern for the physical health of their students.

Whether the success of such programs of physical health should be considered college success or not could be debatable. However, there has been increased national concern during the past decade about physical fitness, about drug problems on campus, and about various other health issues. As early as 1947, health care in higher education was a major concern of the federal government. One of the 11 goals of higher education outlined by the President's Commission on Higher Education was "to improve and maintain his own health and to cooperate actively and intelligently in solving community health problems." This type of concern prompted the inclusion of this area along with the related area of psychological adjustment (which was also cited by the commission: "To obtain a satisfactory emotional and social adjustment") as a topic appropriate to the aims of this book.

Student psychological adjustment, or mental health, has been of vital concern to college officials. This problem is becoming more pronounced as the pace of society continues to increase, especially on college campuses. Many of the students are still in a troubled period of adolescence when they suddenly enter into an entirely new world. During periods of excessive stress, such as during final exams, they may be overcome by anxiety and despair. As documented by several articles listed in this section, suicides occur more often among college students (percentagewise) than in any other group within our society.

A number of students are already troubled by emotional problems when they enter college, and these may become more severe if not detected and treated. The problem for colleges is increasing because of open-door admission policies and societal pressures for bringing in more economically and socially disadvantaged people. These students may have strong motivations to succeed in college, but they often have underdeveloped skills for coping with their independence along with the requirements of the college environment. There is a special need for the college to help such students to adjust and learn to cope.

In the psychological adjustment and physical health area, there has been almost a complete lack of studies concerned with college student physical health. On the other hand, an abundance of research has dealt with the psychological adjustment of college students; and much of the research covered in the personality change section is also related to psychological adjustment. However, few studies have dealt with the effects of college on psychological adjustment other than the negative aspect of "causes of maladjustment." Those studies exploring mean change in psychological adjustment have found a general improvement in adjustment during the college years, but this may very well be the result of increased maturation with age rather than the result of college experiences. An emphasis on the college helping develop optimum psychological adjustment has been exhibited by many counseling studies, but they have dealt primarily with maladjusted individuals.

Success Viewed as Development of Optimal Psychological and Physical Health: Selected Annotations

Bonney (1967) sought to determine if students rated "high normal personality" and "low normal personality" on the basis of student and faculty nominations could be reliably differentiated in their motivations as these were revealed through content analysis of essays written by the students. Also studied were the relationships between self-rated personality assessments and self-expressed motivations. Forty-two state university nonfreshman students in each group were studied. Reliable differences between the two groups were found for four of the eleven content-analysis categories. When motivations of these four categories were related to traits measured on four personality self-rating scales, it was shown that the most significant agreements were on those trait-syndromes described in both assessments.

In an earlier study (1966) the author used sentence-completion responses to differentiate college students who could deal adequately with sexual and aggressive feelings from those who indicated an avoidance or denial of feelings. High scores on the test (which was designed by Mainord and Goldstein) indicated the ability to deal with sexual and aggressive feelings; low scores indicated avoidance or denial of feelings. In this study reliability was determined by the degree of agreement among three independent scorers. The results indicated that the better-adjusted group gave more expressive and individualistic responses ($p<.01$).

Braaten and Darling (1965) studied systematically overt and covert homosexual problems among male college students. Over a period of three academic years, a total of 76 male students with homosexual problems had been patients at the Mental Health Division of the Student Medical Clinic at Cornell University and had completed data on the *Minnesota Multiphasic Personality Inventory* (MMPI), the *Mooney Problem Check List*, the Student Health Record, and the Clinic Folders. The group of students was divided into two subgroups: (*a*) *Overt Homosexual Group* (N=42)—men who had overtly acted out their homosexual desires and (*b*) *Covert Homosexual Group* (N=34)—men who were homosexually oriented in their impulses, fantasies, and dreams, but not in their overt behavior. A control group was also formed of men who had not shown serious overt or covert homosexual problems, but who were regular and equally disturbed patients during the 1961-62 school year.

Data for the three groups were compared using chi-square analysis and *t* tests. When the Overts and Coverts were compared, significant differences in field of specialization were discovered; and the Overts scored higher on the MMPI Psychopathic Deviation Scale, while the Coverts scored higher in the Social Introversion Scale. When the total group with homosexual problems was compared with the control group, it was discovered that the homosexual group was overrepresented in the College of Arts and Sciences, the Architecture School, and the Hotel School; while the College of Agriculture, the College of Engineering, and the Graduate School contributed more to the control group. Although the two groups were about equal in aptitude, the homosexual group had higher academic achievement than did the controls (which suggests that they are more ambitious and hardworking); and they showed more liking for and participation in the fine arts, dramatics, and literature. The percentage of Jewish students was almost twice as large for the control group as for the homosexual group. Although the homosexuals displayed more effeminacy than did the controls (a score of 78 on the MMPI Masculinity-Femininity Scale), less than one-third of them showed any signs of being effeminate in their facial expressions, voice, gestures, dress, or walk. Two of the other findings were that the homosexual group had almost three times as large a percentage of close-binding-intimate mothers (55% of the homosexual students having mothers who had an extraordinary intimacy with their sons compared with a percentage of 20 for the control group) and almost twice as large a percentage of hostile or indifferent fathers (42% for the homosexuals versus 24% for the controls).

Chambers, Wilson, and Barger (1968) attempted to determine the relationship between mental health, personality factors, and academic adjustment. The sample included 2,744 students with religious affiliation and 100 without a religious affiliation at the University of Florida. Instruments used included the *Picture Identification Test* to measure judgments pertaining to 21 needs of the Murray Needs System.

A chi-square analysis suggested that students without religious affiliation have more adjustment problems than other students. Significant differences were found on the Judgment and Association Index need measures which had been found to be related to adjustment in previous studies. The religious nonaffiliators had more inner conflicts caused by the simultaneous arousal of incompatible or opposing needs, and many of them appeared unable to perceive clearly purposes and goals in life. They tended to deny responsibility for others. However, they were more independent, free, and unrestrained that those students with a religious affiliation.

Eastman, Fromhart, and Fulghum (1969) attempted to investigate the relationship between sexual problems and personality development in unmarried women undergraduates at the University of North Carolina. The students in the sample were divided into three groups according to the basis of their complaint: (*a*) Group 1—women whose presenting problem was concern over their sexual behavior, (*b*) Group 2—women who admitted having sexual difficulties which were not the primary concern at the time of consultation, and (*c*) a control group of women who consulted the psychiatric section at the university but did not reveal any concern over sexual behavior. Psychiatric interview and diagnostic records for each student plus the validity and clinical scales of the *Minnesota Multiphasic Personality Inventory* were used in the analyses.

When *t*-test comparisons of group means were conducted, it was discovered that Groups 1 and 2 had more difficulty with impulse control and greater feelings of inadequacy and alienation than did the control group. A comparison of Groups 1 and 2 revealed that Group 2 had more severe symptoms, somatic complaints, depression, impulsivity, defensive projection, inadequacy, social withdrawal, generalized anxiety, and less ego strength than did the women in Group 1. The data seemed to indicate that the women who readily admitted sexual difficulties as a significant problem tended to be better adjusted than those who did not.

Foreman (1966) hypothesized that eleven characteristics "which hold positive value within our middle-class society" would typify optimal psychological health in college students. These characteristics are: (*a*) active involvement with the environment, (*b*) social orientation, (*c*) admission of personal problems, (*d*) spontaneity, (*e*) flexibility, (*f*) expression of affect, (*g*) self-other orientation, (*h*) openness to experience, (*i*) close interpersonal relationships, (*j*) autonomy, and (*k*) anticipation of outcomes.

From a population of nearly 10,000 Ohio State University undergraduate students, 48 were nominated by two or more instructors or residence hall counselors as best typifying optimal psychological health. Of these 48 students, the 31 enrolled in the College of Education were selected for the "positive mental health" group, and 29 agreed to participate. There were five times as many women in the group as men. Matched to this group on the basis of age, sex, aptitude, and number of academic quarters completed were students who received no nominations for positive mental health; and this constituted the "normal mental health" group.

The two groups of 29 students each, one representing normal and the other representing optimal levels of psychological health, were compared through use of the *Activities Participation Questionnaire, Strong Vocational Interest Blank, Mooney Problem Check List,* Reflex Reserve Method, and ratings of small group discussion. Although there was considerable overlap between the two groups, the optimally healthy students did differ from the normal students, and in the expected directions, on most of the dimensions. They were more actively involved in their immediate environment (participated more in university-affiliated social and academic activities and assumed more positions of leadership in these activities), were more open about their personal problems and limitations, were more spontaneous about their positive and negative feelings, and related better to others in small discussion groups.

As a follow-up to the Foreman Study, **Cope** (1969) compared oral language patterns for the same two groups of students. The groups were intermixed in discussions involving three or four persons for a given topic. Sessions were taped so that every word could be recorded. A total of 75 linguistic variables emerged and were factor analyzed. Measures used were participation in the language space, parts of speech, vocabulary variability, time reference, use of negatives, and clarity of expression. Psychologically healthy students were expected to participate more in the discussions, show more maturity in the parts of speech used, exhibit more variety in vocabulary, be more oriented to the present and the future, and have clearer expression. *F*-ratio tests of differences and a follow up factor analysis indicated that the major difference in oral language behavior between the two groups was in verbal fluency. The psychologically healthy students talked more and contributed more of all speech patterns than did students in the normal group. (The only other hypothesis even approaching significance was the one suggesting that the optimum health students would show more concern with the present and future and the normals more concern with the past as indicated by verb tense.) This may indicate that those recommending the students may primarily have been persuaded by fluency.

Horrall (1957) compared the personality adjustment and academic performance of a group of 94 highly intelligent college freshmen with a group of 94 college freshmen of average ability matched on sex, veteran status, fraternity membership, and college of university registration. Group forms of the *Rorschach* and the *Thematic Apperception Test* (TAT) plus the *Spencer Experience Appraisal* were the instruments used.

When statistical tests of the differences between the two groups were conducted, it was discovered that the high-ability students had significantly fewer total needs, fewer needs for achievement and recognition, better overall adjustment, better "effect of environment on person," and better "reaction of person to environment." The high-ability students also had fewer conflicts about personal characteristics and school performance, and on the *Rorschach* they showed greater emphasis on small and unusual details and in loose and confused succession. They also had a higher level of maturity and showed better control. It was concluded that academic underachievement for brilliant students is a symptom of deep-seated personality problems.

Kysar (1964) presented personality characteristics and psychiatric problems of students at the Chicago Undergraduate Division of the University of Illinois, a commuter university. His impressions were that many of the students at this nonresidential university were a selected group who chose this college for multiple reasons having to do with individual, family, and social pathology. These students appeared to have deferred the developmental task of leaving home and were generally entering college on a tentative, trial basis.

Typical personality characteristics and problems noted were social-sexual inadequacy, overcontrol of impulses, social isolation and indecision, conformity, dependency, and intense conflict with the parent of the same sex. It was hypothesized that these same characteristics and problems would predominate at other urban commuter colleges. It was further hypothesized that the psychiatric problems of urban commuter students differ significantly in type, severity, and frequency compared with the problems of students at residential colleges and universities. A conclusion was that there are many opportunities for preventive mental health measures on the urban commuter campus which show promise of achieving satisfying results. Fostering healthy secondary identifications with peer groups and faculty members would seem to be especially important.

Pasca (1960) studied the relationship between personality problems and physical symptoms for 150 Roosevelt University students who had three or more counseling interviews during the year. The students filled out a health appraisal form and were interviewed by a member of the health staff. One-third of the students complied and had more than one health service appointment, one-third had just requested an appointment with the health service, and one-third failed to be interviewed at the health service.

When the records of the students with more than one health service center appointment were reviewed, the 40 students who had received psychotherapy were found to have physical complaints relating to the head region; while the eight students who had received educational and vocational guidance had cut fingers, sprained ankles, and other similar injuries. The students with eye disorders felt inferior and inadequate, while those with ear disorders had an inability to concentrate and had free-floating anxiety.

The 46 students who did comply with the request for an interview at the health service were found to be the most chronically disturbed. The majority of them had poor academic records, and those who had excellent academic records used their performance to verify their worthiness. The difficulties of the "no compliance" group were diagnosed primarily as character disorders, schizoid personality, extreme depression, and paranoia.

Ricks and Wessman (1966) made an in-depth case study of one male undergraduate college student from a small Midwest city enrolled at Harvard University who was unequaled by his peers in his genuine, consistent zest and happiness. Given the code name "Winn," this student was picked for the study after his self-report indicated a higher general level of happiness than was indicated for other students. His happiness was confirmed by an exceptionally low score on the *Minnesota Multiphasic Personality Inventory* (MMPI) depression scale and by consistently high hedonic levels during an intensive 6-week study into the variations and levels of his moods.

Under a team of psychologists directed by Henry A. Murray, Winn was studied by many people using their own special methods, and this report of the research drew on everything known about Winn. To provide data, Winn wrote an autobiography; took more than a dozen tests (including *MMPI, Rorschach, Thematic Apperception Test*); confronted himself on film; and opened his memory, moods, and fantasies to psychological scrutiny.

Part of the reason for Winn's sustained happiness seemed rooted in his background and his gifts, but no single developmental success or trauma seemed to account for happiness or unhappiness. He was from a loving family that was respected in its community, that possessed sufficient means and opportunities, and that fostered growth and provided worthy and approachable models. Winn was gifted in face, form, intellect, health, and talent; and he was consistently successful in his enterprises and in his interpersonal relationships. He possessed self-esteem and confidence and had the organization, purpose, and mastery of himself necessary to attain his goals. He had steadfast optimism supported by a lively, active orientation toward the world, a love of human contact, and balanced, mature judgment. Winn's successes were not crass or calculating; and one of the important sources of his happiness was a reasonable willingness to accept limitations, to curb any inclinations toward narcissistic insatiability he may have had, and to tread the middle road between excess and deprivation with caution, intelligence, and due regard for his fellow man.

Ross (1969) surveyed British and United States studies of college suicides, and the survey indicated that the rate of suicide was unusually high among college students. Among college students, suicide is now the second greatest cause of death, and the rate is 50% higher than for other Americans of comparable age. Among the important causes are identity problems, academic competition or failure, social isolation, living environment, parental demands, financial pressures, lack of parental love or concern, and personal loss (such as of a parent in childhood). College males are more likely to commit suicide, and age is a factor; but it was concluded that there is no relation between suicidal tendencies and marital status, nationality, or religion. Depression is the usual precursor to suicide, and drugs did not seem to be involved very often. A common view held by psychiatrists is that suicide is "a magical act, actuated to achieve irrational, delusional, and illusory ends."

The author expressed the opinion that suicides are predictable and preventable and that early recognition, especially of changes in behavior, mood, or academic performance, and prompt appropriate treatment can prevent suicide among college students. Suicide threat is the most important danger signal of all and should always be taken seriously. Repeated attempts at suicide should not be underestimated. The probability of actually committing suicide increases with each additional attempt.

Seiden (1966) studied 23 student suicides at the University of California, Berkeley, over a 10-year period (from 1952-1961) to identify distinctive attributes of the suicidal student and to determine the environmental conditions which heightened his susceptibility to suicide. He used the method of analytic epidemiology in comparing the subset of student suicides with the total student body population from which they were drawn. Sources of data included the death certificate (for the suicide victims), newspaper clippings, police files, and university records.

The percentage distributions for suicide students were significantly different from those of their fellow students when comparisons were made on the basis of age, class standing, major subject, nationality, emotional condition, and academic achievement. Those committing suicide tended to be older, more often graduate students, more often foreign students, more often psychiatric patients, and more often better academic achievers. Contrary to general belief, the largest percentage of the suicides occurred during the beginning weeks of the semester. Situational conditions precipitating suicide included scholastic anxieties, concern over physical health, and difficult interpersonal relationships.

Sinnett and Niedenthal (1968) investigated the use of indigenous volunteers in rehabilitation living units for emotionally disturbed college students at Kansas State University. In these units the resident staff was composed of volunteer students who were peers of their more disturbed classmates in both age and class. The volunteers were chosen on the basis of their ability and willingness to help and to participate with the students. So that the volunteers would not be encouraged to stand aloof from clients by developing the attachment of "junior therapists," major field was not considered in the selection of volunteers; and staff meetings did not dwell on the theoretical level.

The volunteers served as models for the clients, and close relationships were encouraged within the supportive but intensive living conditions of the unit. Both clients and volunteers appeared to have gained from participating in the program. The volunteers' interest burned out after two or three semesters, but in that time they were able to separate their assumed and real motivation in helping others. The academic dropout rate in the client group was only 6 of 28 clients as opposed to an academic dropout rate of 50% in a similar pre-living unit population.

Swensen (1962) wished to test, for college coeds, Mowrer's assertion that neurosis is caused by the individual behaving in a way that is contrary to standards approved by his conscience. Therefore, he used stratified random methods to select a control group of women from the general undergraduate population at the University of Tennessee who were matched on age and class in school to 25 women students who had sought psychotherapy. Phi coefficients were computed for each of 30 case-history variables rated with the Pascal-Jenkins scale.

Sixteen of the phi coefficients were statistically significant ($p < .05$). It was apparent that the group of coeds needing psychotherapy had less social activity but more sexual experience than did the control group. In addition, within the control group, girls who had had sexual intercourse had significantly more psychosomatic problems than did the girls who had not engaged in sexual intercourse.

As a follow-up to the 1962 study, **Swensen** (1963) repeated the procedures using 17 men who sought psychotherapy and a control group of 17 men selected at random who matched on age and class in school. This time only 5 of 33 phi coefficients were statistically significant ($p < .05$). The control group men had more physical complaints than the neurotic men, belonged to more campus organizations, were more active in campus organizations, had more often "touched girls' breasts," and had masturbated more often. Thus, the hypothesis was supported that college men tend to feel sexual behavior is acceptable for themselves which results in no significant relationship between the presence of neurotic symptoms and involvement in sexual behavior.

Wilson (1965) used a questionnaire on dating activities to study the relation of sexual behaviors, values, and conflicts to reported happiness for a sample of 101 students from several different races and cultures who were enrolled in undergraduate psychology and anthropology classes at the University of Hawaii. Each student rated his happiness on a 0 to 10 scale and his religiousity on a 6-point scale, and then answered the questionnaire under four different sets of instructions: (*a*) Peer set—Circle the statements that describe behaviors you think your peer group would not seriously disapprove. (*b*) Behavior set—Circle all statements which describe how you would probably behave. (*c*) Ideal set—Circle the statements for behaviors you approve for your age and sex. (*d*) Parent set—Circle the statements you think your parents would not seriously disapprove.

The mean number of endorsements for males and females under each set was compared using *t* tests, and then all variables in the study were intercorrelated using Pearson product-moment correlations. Religiosity correlated negatively with liberality and positively with happiness ($r = .33$, $p < .001$). Religiosity was the best predictor of avowed happiness; it had by far the largest correlation with happiness. In addition, after the mean happiness scores in each of the five religious categories were obtained, a perfect rank-order correlation between happiness and religiosity (as defined by the scale) was observed.

Other trends suggested a relationship between unhappiness and several measures of liberality and conflict. The results supported other studies showing a small relationship between adjustment and adherence to traditional, conservative values. Additional findings were that Caucasians were more liberal than orientals, males were more liberal than females, estimates of parental outlook were more liberal than the student's ideal behavior, and a male's own behavior was more liberal than his ideal. A female's behavior was more conservative than what her peers were believed to accept.

A follow-up to the above study (**Miller and Wilson**, 1968) also found little correlation between sexual behavior and adjustment. Evidently, the more a person profits from sexual expression and rewarding personal involvement, the more likely he is to suffer from guilt, and vice versa. Although they think honesty is often conducive to good interpersonal relationships and peace of mind, the authors do not believe (as Mowrer and Jourard appear to) that openness is a virtual panacea for mental illness.

Wright (1967) related student-reported personal stress sources to their personality adjustment for a group of 500 entering freshmen. A personality-adjustment score for each student was developed by adding up the deviations from 50 of *Minnesota Multiphasic Personality Inventory* subscale *T* scores (with the exception of Mf scale which has its meaning dependent on sex). Next, the 100 students having the highest total deviation score were combined to form the Maladjusted Group. Then the 100 students having the lowest deviation score were combined to form the Adjusted Group.

All students had been administered the Personal Rating Scale during fall registration. The students had indicated how much personal stress they perceived regarding each of the 26 items listed on the rating scale. When chi-square tests of significance were conducted to compare the two groups separately by sex, 12 of the tests were significant ($p < .05$) for men. These included stresses associated with eating, depending on others, transportation, loneliness, nervousness, worrying, sleeping, physical appearance, girlfriends, mother, father, and part-time work. Only four of the items were found to be associated with adjustment for women: sleeping, worrying, depending on others, and mother.

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Development of Self-Confidence, Self-Acceptance and an Appropriate Self-Concept

Every student wants to develop confidence in himself. A goal of the college and other interested persons is similarly to enable the individual to gain his self-confidence. Another common goal is to develop an appropriate self-concept, but what is more or less appropriate depends upon who is judging. A church-college official might be expected to have a different concept of the ideal student self-concept than would an official from an exclusive private nonsectarian college. Parents who are from a different cultural, economic, or class background would similarly have different ideals for their children. Even student peer groups maintain a variety of norms for what is the ideally perceived self-concept.

It is apparent that appropriateness is a relative concept. From a psychological standpoint, an "appropriate self-concept" might be thought of as sense of identity which is realistic, which has positive ideals, and which leads to the development of the full potentialities of the person. It is determined to the extent that it is congruent with the person's background, needs, and previous learning. Thus, depending on the person and his situation, any of the preceding examples might be considered an appropriate self-concept. And more than one self-concept may be appropriate for the same person.

Concerning the preceding, psychologists of one theoretical orientation might view appropriate self-concepts differently from those holding other theoretical viewpoints. Therefore, the reader should not consider the above definition as best or even particularly better than any other. The reason it was chosen is that it is broad enough to apply to a wide range of psychological theories of human behavior.

The purpose of presenting the research in this area is *not* to explore the best self-concept for a certain type of person in a particular situation. Rather it is to explore those factors which are common to various self-concepts, to indicate how sharply defined the term is, and to present factors related to change in self-concept. For example, it might be hypothesized that creative dramatic actors must have experienced maladjustment, sorrow, and/or hardships (including lack of confidence) in their past in order to be proficient in their work.

Success Viewed as Development of Self-Confidence, Self-Acceptance, and an Appropriate Self-Concept: Selected Annotations

Back and Paramesh (1969) studied the interrelationships of self-perception, social perception, and self-presentation. Students from three distinct cultures representing three different types of social character that had been outlined by Riesman provided the samples for comparisons: 65 tradition-oriented students from the University of Madras in India; 65 self-oriented students (inner-directed) from North Carolina College, a predominantly black American college; and 65 students oriented toward others (other-directed) from Duke University, a predominantly white American college. The authors assumed social behavior would be affected by self-image, which in turn would be influenced by the culture from which it emerged. Its expression would change as the situation demanded, along with the information one sought of others in those same situations.

The students were asked to report on their self-images (Who-Are-You questions), how they would like to be perceived and what they would like to find out about others at a friendly social gathering, and what image they would like to project when interviewing for a job as well as the information they would like to receive if they had been doing the hiring. Each group showed a distinct pattern conforming to its social structure. The black Americans emphasized abilities and other achievement characteristics; the white Americans emphasized attitudes, values, and interests; and the Indian students emphasized demographic origins (ascribed values) in describing themselves. When sex differences were compared, it was found that women scored higher on ascribed characteristics and men scored higher on the other two categories.

When comparisons were made between the self-image and the projected image, the social situation and the job interview situation, the Indian group changed the most. These students seemed to be most sensitive to the specific situation switching the criteria between the purely social situation and the job situation in an appropriate way. In contrast the U.S. white group had their self-image already pretty well adapted to interpersonal relations and thus did not change much. The U.S. Negroes exhibited a transitional pattern. While they were highest on achievement traits in the self-image, they de-emphasized it in the specific situations; and in the job situation they emphasized ascribed traits.

Denmark and Guttentag (1966) investigated whether the self-concepts and educational concepts of women with little or no college education would be modified by participation in a special accelerated program for adults (30 years of age or older) at Queens College. From cognitive-dissonance theory they hypothesized that college attendance would decrease the discrepancy between the ideal self-concept and the actual self-concept. They further hypothesized that the effort expended during the college semester would result in a positive shift in the evaluation of academic roles, i.e., the "student" and the "college graduate" roles.

A total of 18 women were accepted and entered into the program. A control group of 18 women who had requested applications but never returned them was matched to the experimental group on age, family status, and socioeconomic background. All of the subjects in both groups completed eight 12-part semantic-differential forms prior to and after one college semester: "studying," "learning," "lectures," "me as I would like to be," "me right now," "student," "group discussion," and "college graduate."

The first hypothesis was supported. Initially, the discrepancy between present self and ideal self was smaller for the experimental group than for the control group; and it had decreased even further for the experimental group by the end of the semester, while the control group discrepancy remained the same.

The second hypothesis was only partially supported. Following one semester of college, the experimental group had a positive shift in evaluating the "student" role but no shift in evaluating the "college graduate" role. Once again, the control group exhibited no change from pretest to posttest.

Hershenson (1967) correlated sense of identity as defined by Erickson (congruence between self-image and the image of self attributed to others), occupational fit (the degree to which the person sees himself fit for his chosen occupational role), and enculturation (the person's acquisition of his own culture) for a sample of 162 Harvard juniors. The *Brownfain Social Conflict Index* was used to measure sense of identity; the *Christie and Budnitzky Social Desirability Scale* was used to measure enculturation, and a special scale was constructed to measure occupational fit.

When zero-order correlations were computed, it was found that sense of identity was positively related to the extent the students perceived themselves as fitting into anticipated occupational roles. Sense of identity was also positively related to degree of enculturation, and degree of enculturation was positively related to occupational fit. The association between sense of identity and occupational fit became insignificant when the contribution of enculturation was partialed out.

Differences between pairs of means for several student subgroups were tested for significance using 2-tailed *t* tests. No significant differences were found between graduates of public high schools and graduates of private high schools. However, when students holding traditional values were compared with students holding emergent values, the former subgroup had a significantly higher mean on the *Social Conflict Index* (and, therefore, a weaker sense of identity) than did the latter.

Knapp and Green (1964) related personal characteristics to success-imagery scores for a sample of 111 undergraduate students at Wesleyan University. The success-imagery scales used for the study were experimental and projective in nature and were two of six scales based on metaphors which had been developed by Knapp several years earlier. The one scale was titled "success" and the other was titled "self-image." Zero-order correlations were calculated between these self-concept criterion scores and scores on the Allport-Vernon-Lindzey *Study of Values*, the *Minnesota Multiphasic Personality Inventory*, and the *Strong Vocational Interest Blank*. Factor analysis was then conducted for each criterion scale.

Success and self-image scores were found to correlate significantly with reliable and established personality measures. Buoyancy and optimism were associated with extroversive commitment, entrepreneurship, and the absence of neuroticism. Three factors were found for each of the criterion scales.

As a part of the preliminary screening procedure, the *Activity Vector Analysis* (AVA), a self-concept personality assessment instrument widely used in industry, was routinely administered to all applicants for field sales positions in a company which conducted job interviews each year with new college graduates throughout the country. Over the years officials at this company had noted that the personality profiles of young male college graduates clustered around a particular personality syndrome that was quite different from the distribution of personality profiles for the general population. Generally speaking, the profile was descriptive of an energetic, sociable, and self-confident person, an "All-American Boy" personality.

To explore the influence of college on self-concepts, **Merenda and Clarke** (1961) studied the 367 people who applied for field sales positions with the company during the first three months of 1959. College degrees were held by 171 of the men, and a majority of the remainder had at least one year of college. AVA profiles for all 367 men were plotted and coded for "social self," "basic self," and resultant responses, "the person he appears to be to others." These profiles were related to a general profile through use of a special correlation procedure, and additional comparisons were made between the profiles of the younger and those of the older subjects in the sample. Large differences were noted among the groups.

The results of the analyses were interpreted as clearly suggesting that in the process of acquiring a higher education, college students tend to acquire a stereotyped set of self-concepts which are characteristic of a relatively passive, nonaggressive, socially confident person. These characteristics applied to both the social and basic self-concepts of these former college men. It was assumed that these self-concepts were "reflections of an attitude toward social behavior which the college student acquires through the process of acculturation in the school setting where the desirability of possessing these ideal traits is likely to be imposed by the faculty and fellow students [p. 59]." The authors interpreted the data as suggesting that these ideal and somewhat unrealistic self-concepts were inculcated at college and were not merely the naive self-perceptions of young, worldly, unwise men. And it was noted that the stereotype changed considerably as the men matured both socially and vocationally.

Pallone (1966) related perceived-self and ideal-self changes and congruence (based on *Q* sorts) to college and part-time work experiences during the freshman year for a group of 278 students in three different degree programs (arts, science, commerce). The *Q*-sort device contained 77 nonculturally weighted statements with self-referent themes. The statements were modeled upon statements found in personality inventories, and only those subsequently proving to have social neutrality were selected for the *Q*-sort instrument.

During the final week of the last semester, 26 students in each of the three degree groups were randomly selected from those who had not engaged in either vocationally oriented or "casual" work experience during the school year. Initial and final *Q* sorts for the 26 students selected from each group were intercorrelated, converted to Z' transformations, meaned, tested for significance using the F test, and reconverted. Then the same procedures were conducted for every student in each group who had part-time experience during the year that had relevance not only for his future vocational plans but also for his curricular program or his intended areas of concentration.

It was found that self-ideal congruence in commerce students appeared to "crystallize" relatively early in the college experience and that part-time work experience appeared to accelerate this crystallization. Arts students tended to be less congruent initially than did science or commerce students, exhibited greater self-exploration, and tended to reach a higher level of congruence than did other curricular groups in relation to the initial college experience. Overall trends suggested that vocationally oriented work experience tends to accelerate stable relationships between self- and ideal self-concepts.

Platt and Taylor (1967) selected 112 freshmen in introductory psychology classes at the University of Georgia who described themselves as either "never homesick" or "homesick at the present time." However, only 40 completed the study instrument due to scheduling conflicts or a lack of interest. The authors proposed to test the hypothesis that homesick college students would have a more impaired idea of their future and a greater disparity between concepts of their present and future selves.

The classification of students as homesick or not homesick was validated in two ways. The semantic differential was used and the Mann-Whitney *U*-Test was applied to test for differences between group medians, e.g., homesick students tended to see "present self" as more similar to "a homesick person" than did the non-homesick. When present-future comparisons were made between the group, the results supported the hypothesis. From this the authors posited that the self-ideal of a homesick individual may be an idealistic ideal which he cannot hope to attain with the means at his disposal. Since he does not have appropriate future goals, he is prone to look to the past for his ego gratification.

Rabinowitz (1966) explored changes in self-regard and changes in the relationship between self-regard and four *Biographical Inventory* scales (Independence, Achievement Competence, Social Participation, and Neuroticism) for 70 white, native-born males between their high school senior year (18 years of age) and 25 years of age. The self-score of a modified form of *Bills Index of Adjustment and Values* served as the measure of self-regard.

Zero-order correlations between self-regard and the four *Biographical Inventory* scales were computed for the sample at age 18 and again for the sample at age 25, both before and after intelligence had been partialed out. Self-regard correlated positively with Achievement Competence and Social Participation at both ages prior to partialed out intelligence, but only for the 25-year olds when intelligence had been partialed out. This result suggests that intelligence is an important contributor to the relationship of self-regard to behavioral effectiveness during adolescence but not at age 25. Neuroticism had a significant negative correlation with self-regard in both cases for the 25-year olds but in neither case for the 18-year olds. All correlations between Independence and self-regard were near zero.

Self-regard at age 18 correlated .57 with self-regard at age 25, a finding which confirms that self-regard is relatively stable over the seven years. Another finding was that when a variety of additional variables were correlated with self-regard, several correlations were significant for the 18-year olds (high school average, aptitude, parental occupation level, educational level, peer-rated Achievement Competence, and adjustment) while only adjustment correlated significantly with self-regard for the 25-year olds.

Skager, Holland, and Braskamp (1966) studied mean change after one year on 11 self-ratings (four levels of appropriateness for each scale) for students at ten diverse colleges and universities. Six of the self-ratings were for personal characteristics (scholarship, expressiveness, practical-mindedness, popularity, sensitivity to the needs of others, and intellectual self-confidence) while five were for life goals and aspirations (becoming accomplished in the performing arts, becoming influential in public affairs, making a theoretical contribution to science, following a formal religious code, and being well-read). The institutions were selected from a sample of 48 colleges and universities on the basis of maximizing institutional differences and an acceptable student follow-up rate.

Means were compared across institutions only for students at the same initial level in order to account for floor and ceiling effects, e.g., those initially rating themselves "1" on a scale at an institution were compared on follow-up means only with those at the other institutions who initially rated themselves "1." A table of rankings on each response for the ten institutions was prepared for each scale. Then the consistency of rankings for each item was tested using Kendall's coefficient of concordance which converted into a chi square approximation and provided an estimate of the average Spearman rank correlation.

The results of the tests indicated that, regardless of initial status, there was a consistent tendency for students at each college to show similar, relative amounts of change and to differ from students at other colleges. Differential changes were specifically observed on ratings for two personal characteristics (popularity and scholarship) and for three of the goals (religious values, public affairs, and contribution to science); and in each case change appeared to be related to several college characteristics. While some of the change measures were correlated with the initial college means, the findings did not appear to be accounted for solely by regression phenomena.

As a follow-up to the above study, **Skager and Braskamp** (1966) related change for the entire group of students (across the 10 colleges) to scores on 12 10-item scales measuring nonacademic accomplishments during college using Friedman Analysis of Variance by Ranks and averaged Spearman rank correlations. While the previous results had supported the hypothesis that changes in self-ratings are related to the characteristics of the colleges attended, the follow-up research supported the hypothesis that changes in self-ratings are related to the degree of success in various types of extracurricular experiences.

Suinn and Hill (1964) hypothesized that anxiety would increase the degree of correlation between self- and other-acceptance for a group of 92 students enrolled in psychology courses at two colleges. In addition to exploring this relationship, they desired to ascertain the influence of anxiety on self-acceptance scores and on acceptance of-others scores. Two measures of general anxiety—*Taylor Manifest Anxiety Scale* and *Sarason General Anxiety Questionnaire*—and one measure of test anxiety—*Sarason Test Anxiety Questionnaire*—were utilized in the study. The *Phillips Self-Other Questionnaire* was used to obtain a self-acceptance score and an acceptance-of-others score for each student.

When anxiety scores were correlated with discrepancy scores between self-acceptance and acceptance of others, significant negative correlations were found for all three anxiety measures. The implication was, although there are other possible interpretations, that anxiety disrupts the person's capacity to relate positively to himself and to others. A positive correlation ($r=.35$) between self-acceptance and acceptance of others and negative correlations between anxiety and acceptance (which indicate that anxiety is significantly associated with both lowered self-acceptance and lowered acceptance of others) strongly support such an interpretation. Anxiety lowered self-acceptance at a greater rate than acceptance of others, however.

Watley (1965) investigated students' confidence in college completion and actual achievement, the relationship between confidence and academic ability, interests, and personality. The sample for this study included 547 male engineering students broken down into three subgroups based on their expression of confidence about completing their educational program. Instruments used were grouped into three categories: ability measures (the *Minnesota Scholastic Aptitude Test* and the *Institute of Technology Math Test*), interest measures (the *Strong Vocational Interest Blank*), and personality measures (the *Minnesota Multiphasic Personality Inventory*—MMPI).

An analysis of variance was applied to the data, and the results indicated that an expression of confidence was not related to the measures of ability or interests, but it was significantly related to seven of the MMPI scales. When compared with the confident students on personality, the students who lacked confidence about their objectives were characterized by oversensitivity, compulsive behavior, and withdrawal from social contacts.

Wyer (1965) studied the interrelationship of self-acceptance, differences between parents' perceptions of their children, and goal-seeking effectiveness within a college setting. Instruments used included the *Scholastic Aptitude Test*, the *Adjective Check List*, and a 5-point 1-item scale to measure parental attitudes toward education. Measures were obtained of self-perceptions and self-acceptance for 393 males and 496 females who were students at the University of Iowa. Also collected were data on the fathers' and mothers' perceptions and acceptance of these self-perceptions and on parents' attitudes toward academic pursuits.

An analysis of variance of the data indicated that self-acceptance and parental acceptance are related to academic effectiveness in males but not in females. The discrepancy between the fathers' and mothers' perceptions of their children related negatively to self-acceptance in females and in general to academic effectiveness for both males and females. Males whose parents either agreed that a college education was primarily for intellectual broadening or agreed that it was primarily for social broadening were more effective in goal-seeking than were those whose parents disagreed on this matter.

Success Viewed as Development of Self-Confidence, Self-Acceptance, and an Appropriate Self-Concept: Published Literature.

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Adjustment to and Satisfaction with the Collegiate Environment

Adjustment to college is undoubtedly related to psychological adjustment for many students, but it has been included as a separate category. Psychological adjustment indicates an overall personal ability to see reality, to adapt, and to cope with one's situation. Orientation programs are a primary method colleges have used to help students adjust to college and they are designed for normal, psychologically adjusted young people.

Adjustment to college includes an ability to cope not only with the new situations confronted in the college environment but also with positive reactions to and satisfactions with college. A student may be quite well adjusted psychologically and still be unhappy or unwilling to adjust to the college situation. In fact, it is possible that some students do not adjust to the college environment primarily because they are highly adjusted psychologically.

Far too little effort has been expended by most colleges to study the effects on college adjustment of different types of students made by various campus student personnel programs and to explore new ways of helping their students. Few studies were found in the published literature that attempted to provide such insights about college adjustment. In fact, most of the insights gained came from studies categorized in the grades and persistence section of the survey (Lenning, et al., in press) where former students were asked why they dropped out of school.

Much of the literature in this area is concerned with student ratings of satisfaction concerning faculty, teaching methods, different types of teaching media, etc. Most of this research did not relate such ratings to various student types and classroom situations, however.

Success Viewed as Adjustment to and Satisfaction with the Collegiate Environment: Selected Annotations

Utilizing concepts from the theory of roles in complex organization, **Baird** (1969) examined the relations of graduate students to other students, their spouses, employers, professors, and departments. Variables which seemed relevant from both role theory and the literature on graduate students were considered as parts of a theoretical model of the role of the graduate student, and 5-point Likert-type items were developed to measure each variable. Two outcome, or criterion, scales were also developed: commitment to the field and desire for academic positions.

All scales were intercorrelated, and the resulting matrix subjected to principle components factor analysis with follow-up Varimax rotation. Five factors were extracted. From the results, it seems that a large part of the role relations and general adaptation of students to graduate school is a function of these five variables: the extent of the student's involvement in graduate peer groups, the rigor of academic demands, the degree of ambiguity and conflict in professors' demands, the accessibility of the faculty, and the degree of tension the student experiences from these relations.

The factor "Peer Interaction in Support of Academic Values" suggests the special importance of students' relations with one another to their careers in graduate school. Greater interaction with other graduate students seems to lead to greater commitment to the field.

Boyer and Michael (1968) used the *College and University Environment Scales* (CUES) to compare the perceptions of college seniors with the perceptions of faculty members at seven small religiously oriented colleges and to compare the student perceptions to perceptions of seniors at four well-known but diverse colleges and universities. The seven colleges were affiliated with the Council for the Advancement of Small Colleges. There were a total of 462 students and 278 faculty who completed the CUES. For each CUES scale, the institutional scores of each group of faculty members and of each group of seniors at the seven colleges were calculated, averaged, and converted to percentile rank equivalents. The percentile ranks were then plotted for each scale so that pattern comparisons could be made.

The perceptions of the faculty members and of the seniors were quite close, although the faculty perception of "emphasis the college puts on scholarship" was slightly higher than for students. When raw scores were weighted according to the number of students and faculty at each college, prior to converting to percentile rank equivalents, almost identical profiles were obtained. Next, the senior student profile was compared with senior student profiles at four well-known but quite dissimilar institutions (Antioch, Purdue, Reed, and UCLA). Striking differences from those four colleges were noted. The high-scale scores of the seven colleges with strong religious programs indicated a strong sense of community feeling and of propriety among these students. How strong the feeling was is indicated by the decidedly higher scores they obtained on these two scales over the highest of the four colleges. In addition, they were ranked above all colleges except Purdue on "practicality" and below every college except Purdue on "awareness." They were ranked about even with Purdue and UCLA but below Antioch and Reed on "scholarship."

Coelho, Hamburg, and Murphy (1963) studied the coping strategies used by typical able and well-adjusted students in making the transition from high school to college. From a volunteer group of 105 seniors who ranked in the top half of their class at a suburban Washington, D.C., public high school and who were planning to go to colleges away from home, 14 were selected

(9 females and 5 males) on the basis of demonstrated competence in (*a*) academic work in school, (*b*) interpersonal closeness with a peer, and (*c*) participation in extracurricular activities and social groups. Five of the students enrolled in well-known 4-year liberal arts colleges of the "Ivy League" variety; two went to intellectually demanding colleges with predominantly scientific and technical programs; three chose small, less prestigeful, and less academically competitive colleges strong in vocationally oriented programs and religious education; and four girls enrolled in state universities (two in the large local university, one in an Eastern university, and one in a Midwestern university). Qualitative findings for the study were derived from a set of 11 in-depth interviews conducted with each subject over an 18-month period (four in the spring term of the senior high school year, three during the following summer, and four spread throughout the freshman year of college).

An impressive diversity of patterns of coping behavior in the new academic environment was noted which included projecting clear self-image as an effective doer, mobilizing new combinations of skills, using assets to test new images of growth potential, using upperclassmen as resource persons, identifying with faculty-at-a-distance, recentering one's efforts within a long-term purpose, working out alternative sources of gratification (e.g., in the extracurricular), remodeling prefabricated images of a vocational role, setting intermediate goals in working out long-term plans, referring to the high academic standards by which they were selected, and using interpersonal supports.

Coping functions involved not only self-manipulation of feelings and attitudes in maintaining a sense of worth but also active exploration and use of the interpersonal environment, which often led to broadening the basis of the student's self-esteem. In dealing with difficult or distressing situations they sought out and learned from various kinds of interpersonal relationships. Friendships and peer-group relationships were especially helpful for the student coping with new and perplexing socio-academic problems, and they sometimes helped in giving the student an expanded sense of his potentialities and new career lines for further growth.

It seems reasonable to regard such coping behavior as involving complex skills acquired through long sequences of experiences with considerable transfer of learning from one stressful episode to another. The resolution of early disappointments (within a moderate range of severity) was helpful in coping with the disappointments encountered in transition from high school to college; and mastery of a stressful experience in college tended to contribute to a sense of strength, efficacy, or resourcefulness. Ultimate mastery of a difficult distressing experience tends to enhance self-esteem.

Cole and Ivey (1967) hypothesized that student responses to orientation evaluations represent reactions to the total university environment rather than to the specific orientation program. Therefore, they determined that a study of orientation programs which utilized a control group not attending the orientation was needed. In response to this need, they designed a study which they hoped would provide answers to the following questions: (*a*) Are students who have attended a pre-college orientation and counseling program more certain of their choice of college major than other students? (*b*) Are attending students more confident than the other students of their chances of academic success? (*c*) Do the attending students differ from others in their preference for sources of help with personal and academic problems? (*d*) Do attending students differ from others in their attitudes toward academic achievement, social life, counseling, and the university? (*e*) Do attending students differ from others in measured academic ability and in first-term GPA?

The subjects consisted of 300 high school seniors who planned to enroll at Colorado State University for the 1964 fall quarter. Letters were sent to half of the students on a random basis inviting them and their parents to attend a special pre-college summer counseling and orientation program. The program involved an orientation-to-college lecture, campus tours, meetings with faculty members, and group and individual educational-vocational counseling. Those attending the summer orientation program and their parents completed a special questionnaire at the end of the program. An enthusiastic response to the program was received by both students and parents.

A questionnaire was mailed to all of the subjects in the study at the beginning of the fall quarter to collect data that could provide answers to the research questions formulated for the study. Completed questionnaires were received from 230 students out of the 264 who actually enrolled at the university, and the group sizes were as follows: (*a*) invited to attend the summer orientation but did not attend—63, (*b*) attended the summer orientation—77, (*c*) not invited to the summer orientation—90. Differences among the three groups on questionnaire responses, *Scholastic Aptitude Test* scores, and GPAs were minimal (although it was found that attenders had a more realistic picture of their expected grades). This result could mean that attendance at the summer orientation program had little or no effect. Just as probable, however, is that any differential effects were cancelled out by the usual orientation following registration and the sharing of attending students with those who did not attend. The students in all three groups went through the regular Welcome Week orientation program in September. The study clearly raises as many or more questions as it answers.

Constantinople (1967) used 188 freshmen and 165 juniors from the College of Arts and Science at the University of Rochester to relate scores on the *Perceived Instrumentality of the College Test* (PICT) to satisfaction with the institution and to degree of happiness experienced by the students. The PICT consists of 14 statements, each of which might be described as a goal in the college experience. The students rated each goal statement for the importance of the goal in their own college experience and the degree to which the university was perceived as helping or hindering progress toward that goal. A 7-point graphic scale was used by the student to indicate his degree of satisfaction or dissatisfaction with the university. Each student was also asked to indicate which one of ten statements best described his average level of happiness or unhappiness during the current academic year. Data were gathered during the first two weeks of March.

Relationships of the PICT with the criteria were explored using Pearson product-moment correlations and *t* tests. Analysis-of-variance procedures were used to explore sex and class differences in ratings. The summed product of the goal ratings correlated positively with rating of satisfaction with college and also differentiated between students claiming relatively high as compared with low average levels of happiness during the academic year. Mean evaluation ratings decreased from the freshman to the junior year, while instrumentality ratings tended to increase. In most instances, females gave higher ratings of both evaluation and instrumentality than did males.

Demos (1967) discussed the problems of integrating the commuter college student to the college campus. These problems center around the following four difficulties: (*a*) the difficulty of getting commuter students involved in college activities outside of the classroom, (*b*) the difficulty of developing meaningful personal contacts with members of college faculty and administration, (*c*) the difficulty of developing close personal contacts with other students on the campus, (*d*) the difficulty of breaking the barrier of anonymity and general depersonalization that develops as a result of the three foregoing difficulties.

Because of these difficulties, a syndrome of psychological problems can develop characterized by apathy, depression, lack of affective reaction, and concomitant identity crisis. Considerable effort needs to be expended to keep the students on the campus—in essence, to actually "manipulate" their environment, create a desire to stay, and provide facilities so that they can and do remain on campus and participate to some degree in activities outside the classroom. Special programs by the Student Affairs Office and the College Union can help. Also useful would be providing financial aid for those who cannot participate because they "must work to put themselves through school." Students and faculty must help, too, and one way is through more numerous informal contacts. Occasionally, perceptive and more mature students can be employed to help provide those aspects of the therapeutic environment that are needed. Since nonparticipating students may be frustrated and even threatened by close personal relationships, thus reinforcing negative feelings, it was suggested that the initial contacts be in group activities, such as a ski club or discussion club, that allow the student to "get outside of himself." The principle is that in a benign, gentle, relatively nonthreatening situation, success and acceptance are much more likely to occur and improvement to follow.

Drabek 1966) studied student preferences in professor-student classroom role relations. He wanted to answer two specific questions: (*a*) Do students vary along a continuum from active to passive in the professor-student role relationships they prefer in the classroom? (*b*) Can these preferences be explained in terms of differential characteristics of the students? There may be a relationship between social inadequacy and preference for passive, conforming modes of classroom participation. On the other hand, the student's preferred classroom role may merely represent a continuation of the kind of role definitions to which he is accustomed outside the classroom.

A total of 740 students (approximately 70%) responded to a questionnaire sent to 1,249 undergraduates attending a large Midwestern university. The questionnaire contained a dogmatism scale (half the items from the 40-item *Rokeach Dogmatism Scale*), a creativity scale (half the items from the 32-item *Creative Attitude Scale* developed by Torrance), a 12-item religious ideology scale, the first section of the *McLean Social and Religious Concepts Inventory*, a 5-item scale dealing with parental attitude toward learning, and an item asking them to list any extracurricular activities in which they occupied leadership positions while in high school or college. Scores on the *Ohio State Psychological Examination* were available for a measure of "mental potential."

A "known" criterion group was formed of students nominated by ten professors as meeting the criterion of the "active" student. Of the 75 names suggested, 58 (80%) had completed the questionnaire. Another "active" and a "passive" group were formed by using the upper and lower quartiles on the distribution of scores obtained on a professor-student role relations inventory especially prepared for the study.

Mean scores on the dogmatism, the creativity, and the religious ideology scales were compared for the active and passive groups through use of *t* tests. Since the remaining independent variables did not meet the criteria of interval level measurement, the combined group was split into high level and low level on each of those variables (mental potential; number of serious magazines; father's education; mother's education; frequency of discussion with parents of national or international issues; frequency of parental use of public, private, or university library; and number of extracurricular activities [none versus three or more]). Then means for each pair of groups on the professor-student role relations inventory were compared using *t* tests.

It was discovered that the students varied markedly in the types of professor-student relations they preferred in the classroom. High mental potential, high creativity, and low dogmatism scores were found to be associated with preference for a more active student role. Preference for a more active student role was also associated with students whose parents subscribed to a number of "serious" magazines, who frequently discussed issues of national and international importance, and who made frequent use of the libraries. Subscription to orthodox religious beliefs and leadership in extracurricular activities of an intellectual nature represent styles of roles outside the classroom that correspond to active and passive classroom role preferences, respectively. When the independent variables were used in a regression equation to predict scores on the professor-student role relations inventory, a multiple correlation of .397 was obtained.

Hiltunen (1965) attempted to identify the characteristics, motivations, and problems of the adults classified as freshmen at a state university that had no special programs or regulations for adults. If the adult is to resume his education, he must adapt to a system intended primarily for young people; and because of this situation, adults may need special help. The sample for the study consisted of 32 men and 41 women daytime students who were 23 years of age or older, who had enrolled at Louisiana State University in New Orleans for the first time in September of 1963, and who had completed less than 30 hours of previous college work. A questionnaire was mailed to each subject to gather data on the student's background, his home and family responsibilities, outside employment, and future plans. There were also three open-ended questions which had the student respond according to his needs and feelings.

Observation of the percentages, separately for males and females, indicated that the men were seeking higher education primarily to achieve job-upgrading while the women felt more of a need to learn for enlightenment even when job preparation was part of their objective. The men were weak in verbal skills and made less than average grades the first semester, which raised questions about whether they would reach their objective. On the other hand, the women had above-average skills and first semester grades and appeared able to reach their goal unless home responsibilities would interfere. (Of course, it must be remembered that these groups were small.)

The results suggested the need for more extensive counseling for the adult students, especially men, for them to really adapt to the university environment and to have a better understanding of themselves and the curricula they are planning to pursue. Also, a definite need for the university to provide special extracurricular opportunities for adult students was indicated. No one had participated in any organized campus activity during the first semester, and only a small number indicated that they planned to do so. Yet, when asked if they would be interested in forming a group whose ages and interests would be similar to their own, half of them said "yes."

Isaacson and associates (1964) had two groups of introductory psychology students at the University of Michigan (691 in the fall semester and 569 in the spring semester) rate their teachers on a 46-item questionnaire. The questionnaire was derived largely from factor analyses of 145 items that had been used in previous studies. The questionnaire data were factor analyzed separately by sex and semester using Kaiser's method of factor analysis. Six factors were found which were consistent for both semesters (even though different students and teachers were involved): skill, overload, structure, feedback, group interaction, and student-teacher rapport. Interestingly, no factors were found which were common to only men or to only women or to only the first semester or the second semester.

As a follow-up to the above, **Isaacson** (1964) followed the same procedures except that he used a different student evaluation form and used students in an introductory economics course instead of students in a psychology course. Once again six stable factors were found. In spite of the fact that a different evaluation questionnaire was being used in a different curricular area, four of the factors were the same as found earlier: teacher skill, student rapport, overload, and structure. The other two factors, unique to the economics course, were "change in beliefs" and "value of the course." The failure to find the other two factors found earlier ("evaluation" and "interaction") suggests that some factors in student evaluations of instructors are general across course areas while some are unique to specific course areas. On the other hand, the different instrument may merely not have contained items that would tap the other two factors.

Martin (1968) attempted to evaluate perception of college along a pattern of self-theory. The sample included 83 freshmen enrolled in an introductory psychology course, 12 faculty members, and 12 graduate students at the University of Saskatchewan. The only instrument used was a modified *Q* sort which included 70 statements relevant to college life.

An index of satisfaction was the product-moment correlation (*r*) between students' real and ideal *Q*-sort responses according to Block's method. For measures of central tendency, *r* was transformed to Fisher's *z* and a mean *z* was calculated and the results then converted to an equivalent *r*. The general pattern indicated initial satisfaction with college, but this tended to decrease by the end of the first year. There was no statistically significant relationship between the degree of satisfaction and level of academic achievement at the end of the first year.

Neidt and Sjogren (1968) explored changes in students' attitudes toward a course as a result of the media used and as a result of class size. The sample included students enrolled in lower division courses as follows: 837 students at Colorado State University, 230 students at the University of Colorado, and 533 students at the University of Missouri. The courses were classified by instructional medium and enrollment as follows: programmed instruction (331 students in German, audiovisual methods, English composition, written communication, and anatomy); educational television (323 students in anthropology, agricultural economics, and general psychology); small classes using lecture and discussion methods (363 students in educational psychology, German, and English composition); and large classes using the lecture method (598 students in anthropology, educational psychology, and English composition). The term for each course was divided into five equal increments and a scale administered after each segment which measured attitudes toward the method of instruction, attitudes toward expectation fulfillment in the course, and attitude toward course content.

Regression procedures were used to develop a quadratic equation for each method of instruction which when plotted described the changes in attitude scores as the students progressed through the courses. The mean scores at all points were by far the highest for the programmed instruction group, followed by the means for television instruction, small-class instruction, and large-class instruction, in that order. There was a consistent decline from one time period to another in programmed instruction, television, and small-class instruction, with the decline being much larger for the first two methods. It did appear that the first two were leveling off at points higher than the third method, however. Only a slight decline was found for large-class instruction over the first three measurements of attitudes, and then the satisfaction leveled off from the third to the fourth measurement point and started to rise slightly by the fifth measurement point.

When the subscale means were examined, the same patterns were noted. The differences were so pronounced that in only two instances were there overlaps between the *lowest* mean on a subscale in a high group and the *highest* mean on the same scale in an adjacent group: (*a*) "attitude toward content" scale for the programmed instruction and educational TV groups, (*b*) "attitude toward methods" scale for the television and small-class groups.

It should be remembered in interpreting these findings that the courses differed in subject-matter content across groups, although there was some overlap. Not only will this in itself possibly affect course attitudes but also some of the courses will probably attract students with different abilities, interests, and personalities, etc., than will other courses. It would have been preferable if some matching across groups on course type and student type could have preceded the study.

Pervin (1967a) related satisfaction with the environment to perceived self-environment similarity for a sample of 365 Princeton undergraduate volunteers using the *Transactional Analysis of Personality and Environment* (TAPE), a semantic differential instrument. Concepts of self, college, and ideal self were rated on 52 polar-adjective scales; and satisfaction with environment was indicated on five other scales of the TAPE.

When product-moment correlations between satisfaction and discrepancy scores on the TAPE were computed, self-college similarity was found to be significantly related to ratings of satisfaction with the college environment. Interaction data (self-college discrepancy scores) were found to be superior predictors of satisfaction than were data based on self or on college perceptions alone, and environmental satisfaction did not appear to reflect satisfaction with self. The results also suggested that where ratings are given on concepts such as Self, College, and Ideal Self, both the relative distances between the ratings and the direction (ordering of the ratings) need to be considered.

Pervin (1967b) next studied student-college interaction for a sample of 3,016 students from 21 colleges, using the TAPE again. Analysis indicated that discrepancies between student perceptions of themselves and their college were related to dissatisfaction with college.

Rand (1968) searched for the answer to two questions: (*a*) What is the relationship between student satisfaction with his college and the extent to which certain of his characteristics match those of others at his college? (*b*) Will matched student and institutional characteristics used in combination lead to a discrimination between different degrees of student satisfaction? It was hoped that some light could be shed on the validity of the assumption underlying most popular college guides, which is that a student will be more satisfied if he chooses a school with a student population similar to himself in personality, interests, attitudes, etc.

The sample involved 7,257 end-of-year freshmen at 24 diverse colleges. Selected as variables were 14 scales from the *American College Survey*, a questionnaire administered to freshmen throughout the country in the spring of 1964 for a broad scale series of studies. Measures included the six scales of Holland's *Vocational Preference Inventory, American College Test* scores (4 scales), and the *Student Orientation Survey* which gave scores for Trow's four subcultural orientations. Satisfaction with college was indicated by a 3-point scale (very satisfied, satisfied, and dissatisfied). Separate analyses were conducted for universities, 4-year colleges, and junior colleges and for males and females. Institutional means were computed on the 14 scales for each of the 24 colleges. Deviation scores for each individual student were obtained by subtracting his scores from the means for his college. Then analyses were conducted using the deviation scores.

To get answers to the first research question, the student groups were split into three groups on each variable according to the magnitude of their deviation scores: top 27%, bottom 27%, and the remainder. Then chi-square tests were used to test for differences in satisfaction between the groups for each variable. A total of 18 of the 84 null hypotheses were rejected at the .05 level. No clear pattern appeared to emerge with respect to any of the 14 variables for any group.

The Rao method of multiple-factor analysis was used to suggest conclusions for the second research question. The results indicated significant discriminations of the deviation scores on satisfaction for university males and females. Partial discriminations were possible for junior college males, while no discriminations were possible for junior college females, 4-year college males, and 4-year college females.

The results seemed to indicate that the relationship between satisfaction and matching is minimal and complex. It was concluded that there are very few patterns of matching of individuals and institutions which are related to satisfaction with college choice.

An earlier study (Solomon, Bezdek, and Rosenberg, 1963), had indicated among other things that "clear, expressive," and "warm" teacher behavior was related to positive student evaluations of college teachers. Therefore, **Solomon** (1966) conducted a study to replicate the earlier one and to see if the same factors of teacher behavior would emerge under different conditions, with simpler measurement techniques and with a different and larger sample. The sample was composed of 229 instructors from a broad range of adult evening courses at five institutions: Hofstra College, University College of Syracuse University, University of North Carolina Extension, the University of Nebraska, and the University of Colorado. A questionnaire in which the students of these instructors described their teachers' behaviors was the instrument used. The questionnaire was a modified version of the one used in the previous study.

The class means on the 69 items in the questionnaire were used as teachers' scores. These scores were factor analyzed using the principle-components method with Varimax rotation. Ten factors were extracted that accounted for 68% of the total variance; and these factors were interpreted as follows: (*a*) lecturing vs. encouragement of broad, expressive student participation; (*b*) energy, facility of communication vs. lethargy, vagueness; (*c*) criticism, disapproval, hostility vs. tolerance; (*d*) control, factual emphasis vs. permissiveness; (*e*) warmth, approval vs. coldness; (*f*) obscurity, difficulty of presentation vs. clarity; (*g*) dryness vs. flamboyance; (*h*) precision, organization vs. informality; (*i*) nervousness vs. relaxation; and (*j*) impersonality vs. personal expression. The factors were quite similar to those found in the earlier study.

Next, the teachers' factor scores were divided into high and low groups, and these groups were related to the following course characteristic variables using chi-square tests: class size (ten or more students vs. nine or less), "basic" vs. "applied" courses, and course areas. No significant relationships were found for course size; but on the next variable it was found that in basic courses, teachers tended to be more nervous, to be more critical and disapproving, and to use more lecturing. Conversely, teachers of applied courses tended to be more relaxed and tolerant, and encouraged relatively more broad, expressive student participation. Concerning course areas, the following was found: social science teachers exceeded chance frequencies in permissiveness, coldness, clarity, and nervousness; humanities teachers exceeded chance frequencies in encouraging broad, expressive student participation, warmth, and nervousness; natural science and mathematics teachers exceeded chance frequencies in lecturing, control and factual emphasis, obscurity and difficulty of presentation, and impersonality; and teachers of practical courses exceeded chance frequencies for relaxation and personal expression.

Walsh and MacKinnon (1969) investigated the effect of an experimental program in the College of Arts and Sciences of the Ohio State University on student perceptions of the university. The experimental male group and the experimental female group of freshmen were grouped together in a sequence of English and history courses during the year. The students also lived in close proximity and took their meals in the same dining room. In addition, faculty members were available for individual consultation, planned dinners, discussion groups, and cultural groups. It was hoped that this would turn out to be an environment that was rewarding and challenging. A control group of Arts students was randomly selected from the residence hall rosters, and they interacted in the environment normally encountered by new students.

Both groups completed the *College and University Environment Scales*

(CUES) upon entrance in terms of their expectations about the university environment. Five months later, 69 males and 41 females (out of 161) in the experimental group and 62 males and 78 females (out of 246) in the control group completed the CUES again, this time in terms of their experiences in the environment. Differences between group means on pre-test and post-test and on change scores, plus interaction between sex and experimental condition, were explored for each CUES using 2-factor analysis of variance (ANOVA) for unequal sample sizes. Follow-up *t* tests were used to take a closer look at significant ANOVA results.

For every group all five CUES dimensions on the post-test mean perception scores were significantly lower than the pretest mean expectation scores. However, on all scales except practicality (the exception being for the experimental female group) the decrease was larger for the experimental groups than for the control groups. The control female group exhibited the least change on most of the dimensions, while the experimental female group had the greatest change on most dimensions.

The results suggest that the special program did have an impact on the participating students, perhaps giving them more realistic perceptions of the college environment. However, there was a serious limitation in the study in that the experimental students were self-selected.

Walsh and Russell (1969) attempted to investigate the differences in personal adjustment problems between freshman college students who made congruent choices of major and those who made incongruent choices according to Holland's theory of vocational choice. The sample included 124 male and female students living in the residence halls at the Ohio State University. Instruments used included the *Vocational Preference Inventory* (VPI) and the *Mooney Problem Check List*.

Separate analyses were conducted for males and females using analysis of variance for unequal numbers, with follow-up *t* tests. For the congruent group, college major was consistent with the dominance scale on the VPI. For the incongruent group, college major tended to be inconsistent with the dominant VPI scale. Students making congruent curricular choices reported fewer personal adjustment problems when compared with the incongruent group.

Wright (1964) and his associates focused their attention on the sources of tension and stress within the university that can be related to typical activities conducted there. They were interested in the nature of the stress, the way in which it is perceived by students, and its possible spread from student to student or subgroup to subgroup. The major areas explored for stress-relief effect were (*a*) academic, (*b*) organization or affiliation, (*c*) administrative, (*d*) treatment or counseling, and (*e*) social and personal.

Beginning with almost 300 activities that included every formal or informal aspect of university life, the focus was empirically narrowed to 26 activities. A total of 121 women and 181 men in two undergraduate general psychology courses at the University of Florida were asked to rate the amount and the duration of stress associated with each of the activities and to also rate their attitude toward the activity on a like-dislike continuum. Exactly the same activities were then used to elicit the amount and the duration of relief or satisfaction afforded and to elicit the attitude toward them in this light.

The results for the students examined during the last term in which a semester system was in effect suggested that for both men and women, as satisfaction with self increased, the amount of stress perceived in the environment tended to decrease. The subject's attitude toward this stress, that is, his like-dislike score, was also negatively correlated for men. This negative correlation indicated that as his self-satisfaction increased, he felt better about the stress he experienced. For women this correlation was significantly positive which was just opposite that of the men.

The general academic area was perceived as most stressful. For compensating relief activities that produce relatively little stress, the areas of physical education and sports ranked high as did social activities, academic counseling, and medical treatment. In general, the overall relief effect exceeded the stress effect reported by students. This result would support the contention that despite the stress associated with higher education, the experience is still predominantly satisfying.

The university adopted a 14-week trimester system for the following fall, and this change resulted in a more rigid time schedule; thus many habits were challenged. When the procedures were repeated with the remaining students, there were changes in the results. The most striking difference was the relative susceptibility of the men's activity-stress scores to change when the shift was made from the semester system to the trimester system. Eighteen of the mean scores for men had changed in the positive direction. Furthermore, the correlations between stress and satisfaction with self were now both significant at the .05 level, wheras this correlation had been significant only for men before the changeover. Another change was that whereas the semester group had a significant positive correlation of .49 between perceived stress and grade point average (with little or no relationship, $r = .09$, between high school achievement scores and present college grades), there were no significant correlations between the various measures and grade point average for the trimester group.

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SUCCESS VIEWED AS MOTIVATIONAL AND ASPIRATIONAL DEVELOPMENT

It is generally acknowledged that man is a purposive being and that all people act with purpose. To an observer, however, other people sometimes do *not* act reasonably, and their behavior seems to lack purpose. Even so, human behavior is assumed to have reasons for its occurrence and often times observations of behavior begin to make sense only later when the person's underlying needs and goals become apparent. Psychologists have noted that even the psychotic's actions seem reasonable when looked at from his frame of reference.

Colleges do try to develop motivations and aspirations in students. Furthermore, they generally profess to help their students be more realistic or appropriate in their motivations, plans, expectations, and aspirations. Factors related to such student development (including vocational development) are the topic of this chapter.

Development of Self-Appraisal Habits, Realism, and Appropriate Aspirations

Concerning factors related to the development of self-appraisal habits, realism, and aspirations, most of the studies have dealt with aspirations. Some work has been done on the aspirations of college students for graduate school, medical school, and particular occupations; but attention has been focused primarily on high school seniors and their aspirations to attend college.

Discrepancies between aspirations and expectations, and discrepancies of these from reality as noted by trained observers, are often used by researchers and counseling practitioners to describe the appropriateness of reality of a person's planning, decision-making, and evaluative functioning. The college may try to help the student change his aspirations, his expectancies, or both. For example, Shaw (1967) reviewed studies which suggest that "individuals who perceive a learning situation in which outside forces determine the reinforcements are less likely to raise their expectancies for future reinforcement, even following success. They are also less likely to lower their expectancies as much after failure. [p. 571]."

College personnel typically desire that their students develop appropriate skills for planning and evaluating; and the student, his parents, and others usually see the development of such skills as desirable, also. Many students have developed these competencies only to a very small degree by the time they graduate from high school, and they may or may not decide it is worth the effort to develop these skills in college. However, they have often matured by the time they enter college and eventually come to recognize the importance of their college experience in this respect.

Reality is the key word in this section. Has the student learned how to evaluate and to plan realistically? Of course, the development of organizational ability is also important. The student cannot be realistic unless he can organize much information into an orderly and meaningful whole that will allow him to observe and to understand priorities, requirements, contexts, bottlenecks, critical incidences, when to generalize, etc. He must be able to set realistic and attainable goals and to develop appropriate immediate and long-range aspirations.

Success Viewed as Development of Self-Appraisal Habits, Realism, and Appropriate Aspirations: Selected Annotations

In order to compare the effects of different college characteristics on the student's motivation to obtain the PhD degree, **Astin** (1963a) employed a special input-output design (which controlled for differential college input) to study change in aspiration from college entrance to four years later for 6,544 National Merit finalists. The method used as analogous to analysis of covariance but was reported to have the advantage of being able to deal with nonlinear relationships, categorical predictors, and interactions among predictors. The method was reported to be limited in one respect, however, in that it required large numbers of subjects.

Results of the analyses suggested that PhD aspiration is negatively affected by student body size, the percentage of males in the student body, and the amount of Conventional Orientation in the college environment. Social Orientation scores were also found to significantly affect PhD aspiration, but the relationship here was very complex. PhD aspiration tended to be reduced as a function of attending one of the Northeastern mens' colleges. Conversely, attending a coeducational liberal arts college appeared to increase the students' motivation to seek the PhD.

Crowne and Associates (1969), as a part of a larger project investigating self-evaluative behavior and its development, explored child-rearing antecedents of level of aspiration for 83 18-year-old young adults (46 males and 37 females) whose mothers had reported their child-rearing practices for another study 13 years earlier. Each person was contacted by telephone and offered an honorarium and travel expenses to come to Harvard University and to take several psychometric measures. Each subject was administered two personality scales and a level-of-aspiration task (the *Rotter Level of Aspiration Board*, a measure of goal-setting). Half of the subjects also completed a measure of sensitivity to emotional communications prior to taking the level-of-aspiration instrument.

Zero-order correlations were calculated between scores on each of 188 child-rearing variable scales and the level of aspiration scores (three different Rotter level-of-aspiration scores for each subject). A consistent and significant tendency was found for defensively high goal setting to be associated with early primitiveness toward aggression and dependency, high maternal anxiety, and more prevalent obedience problems. Maternal protectiveness seemed to lead to failure-avoidant level of aspiration. The authors cautioned that these findings, while spanning a 13-year period and showing consistency, should be considered suggestive rather than definitive because of the large number of comparisons which were made.

Gibb (1968) conducted an exploratory cross-sectional study of 250 first-semester students at a large Midwestern state university in order to identify home background factors which may be related to self-actualization. Scores on the *Personal Orientation Inventory* (POI), which is purported to measure self-actualization, served as the criterion. Family background information was gathered with a questionnaire especially developed for the study.

Mean differences between POI scores and scores on the background variables were tested using the *t* test. Since it was strictly an exploratory study, the level of significance was set at .20. However, differences at the .05 and .01 levels were given primary consideration in interpretation.

It was found that students who scored higher on the measure of self-actualization tended not to be involved in active religious participation. Furthermore, they had parents with higher levels of formal education, came from families with one to three children, came from families where the mother had worked full-time, and came from families providing little or no religious training. Variables for which there were few, if any, significant mean differences were whether or not the students came from a broken home, whether the students came from a nuclear or an extended home, amount of time the father traveled away from the home, and religious affiliation.

In the fall of 1957 a total of 3,581 undergraduate seniors, graduate students, and professional students in various fields at 35 diverse colleges and universities throughout the country participated in a study by **Gropper and Fitzpatrick** (1959) of factors leading students to attend graduate school. A questionnaire was completed which gathered data on personal background plus perceptions about factors influencing the kind of education chosen and the level to which it was intended to be pursued.

Using chi-square analysis of associated frequencies ($p < .01$), undergraduate seniors planning to attend graduate school were compared with the students already in graduate school. When only slight differences were discovered, comparisons were made between seniors planning to attend graduate school and those not planning to attend graduate school. Chief factors differentiating the two groups were ability, sex, and social and economic status. Men with high college grades and whose fathers had high occupational status and educational attainment, but undistinguished incomes, tended to go on to graduate school. Men whose college grades were less distinguished, but whose fathers had more distinguished incomes, tended to go on to professional school.

High school experiences were not found to influence plans to attend graduate school. Whatever encouragement the high school experience provided for college entrance appeared to be limited to that academic level only.

Herriott (1963) studied social determinants of educational aspiration for a group of 1,489 students at one high school in western Massachusetts. He was looking for the intervening variables which explain why certain status characteristics of students have been found to be predictors of educational aspiration. In addition, he wished to discover the ways in which these variables could be influenced to result in higher student educational aspirations. His hypothesis to be tested arose from a general theoretical model which pictured an individual's level of aspiration as being influenced primarily by (*a*) the level of his self-assessment relative to his assessment of others and (*b*) the level of the expectations which he perceives that significant others hold for his behavior.

The specific problem of individuals failing to develop their talents was considered by examining seven bases of self-assessment (intellectual motivation, intellectual ability, intellectual performance, economic motivation, economic performance, school social performance, and nonschool social performance) and eleven loci of expectations (father, mother, older sibling or relative, friend of same age, friend a few years older, junior high counselor, senior high counselor, junior high teacher, senior high teacher, adult friend of the family, and some other adult) revealed in a specially designed questionnaire. Analyses consisted of zero-order correlations and multiple correlations between aspiration level and the 17 variables, plus 7th order partial correlations and an 18th order multiple correlation between aspiration level and the expectation variables with the association of the seven self-assessment variables and educational aspiration held constant.

Results indicated that the higher the level of self-assessment relative to others, the higher the level of educational aspiration; the higher the level of expectation perceived from significant others, the higher the level of educational aspiration. In addition, when the level of assessment relative to others was held constant, the more an expectation perceived from a significant other was valued, the stronger was the association between level of expectations perceived from significant others and level of educational aspiration.

Mulford (1967) applied hypotheses to the college situation which had been developed by Argyris (1957) from research in an industrial setting. His hypotheses were that self-actualization scores increase as students are upwardly mobile within a status hierarchy and that student productivity is a function of both a personal commitment to the college and to self-actualization.

A total of 93 students in a small, highly select Midwestern college were asked on a questionnaire to list their predispositions ("important experiences, desires, or areas of personal development one could reasonably expect to be part of a meaningful college career") and to indicate the importance of each predisposition on a scale from 1 to 3. The degree of actualization with regard to each predisposition was then indicated on a scale from 0 to 3, and the degree of self-actualization for a particular student was expressed as the ratio of the sum of products of importance times actualization divided by the sum of products of potency times 3.0. The self-actualization scores (which could range from .00 to 1.00) were then averaged for each sex separately for freshmen, sophomores, juniors, and seniors. A small but consistent trend for self-actualization scores to increase as students progressed from early in their college careers to late in their careers supported the first hypothesis, especially since the dropout rate at this college was small. There were no differences noted between men and women.

Mulford then computed correlations between self-actualization and various student background and present-status variables. Self-actualization was unrelated to the productivity variables but was significantly related to the variables indicative of commitment to this particular college. Next, 40 sign-test comparisons were made between GPA distributions for students at different grade levels (commitment) and levels of self-actualization. The second hypothesis, that student productivity is a function of both personal commitment to the college and self-actualization, could not be refuted by the data. Because of this finding, Mulford suggests that other extensions of Argyris' research should be applied to the college setting. For example, Argyris' research implies that maximum personal development will not occur until students are given significant roles to play in the organization's life.

Sherman (1968) used 78 undergraduate men at the University of Virginia to investigate the relationship between risk attitudes and strategic choice, as well as the influences of internationalist attitude and tolerance for ambiguity on strategic choice. Three personality instruments were administered to the subjects in the study: (*a*) *Kegan and Wallach Test of Social Risk Preference*, (*b*) *Sampson and Smith Scale of World Minded* (internationalist) *Attitude*, and (*c*) a special tolerance for ambiguity measure. Scores on these scales were related to scores on a measure of competitive strategic choice behavior using Spearman coefficient of rank correlations. The degree of association of all four measures was determined by the Kendall coefficient of concordance.

Analysis revealed an association among all four of the measures. Although all three personality measures were somewhat related to strategic choice, neither tolerance for ambiguity nor internationalism afforded as strong a relationship with strategic choice as did risk preference (risk attitude). Concerning the internationalism predictor, highly internationalistic subjects chose more competitive opportunities, not less. Thus, since competition rather than cooperation was emphasized by the scale, perhaps it does not identify genuine internationalism.

In a follow-up at the end of the sophomore year of 1,086 National Merit finalists initially planning to enroll in one of 15 major fields of study, **Thistlethwaite** (1962a) explored differences between students in different fields of training and tried to ascertain the effects of faculty and student press upon student plans to seek advanced training. Students completed a 200-item *Inventory of College Characteristics* which asked about certain student job values and offered students the opportunity to describe the pressures and activities—intellectual and social—which characterized the faculty and students in their major fields of study. The inventory included ten scales descriptive of the faculty in the subject's major field; ten scales descriptive of student associates in the classroom and living areas, and three scales descriptive of student values (intellectual orientation, social status orientation, and social welfare orientation).

Analysis of variance and *t*-test comparisons across curricular fields of study revealed that differences between the curricular areas were greatest with respect to student social welfare orientation and faculty press for humanism, scientism, and vocationalism. When level of educational aspiration became the criterion, post-test aspiration levels were compared by analysis of variance for groups with different personal attributes. Then post-test differences between groups were adjusted for pretest differences in aspiration, and comparisons were made through the use of analysis of covariance. For men, but not for women, the results supported the hypothesis that faculty pressures and activities influence the student's desire to seek advanced training. Men who reported that their teachers exerted relatively strong press for independence, supportiveness, and affiliation tended to raise their aspirations for advanced training more than did men not reporting such press. In addition, exposure to honors programs or to peer groups characterized by openness to faculty influence resulted in more of an increase in educational aspirations for men.

Thistlethwaite followed up the preceding study with another longitudinal study (1962b) of 2,405 undergraduate men to see if he could rule out interpretations of the findings in terms of retrospective errors of recall or in terms of alleged anomalies related to covariance analyses. This time the students reported their level of aspiration at college entrance and again four years later at graduation. Results of the follow-up study confirmed and extended the previous findings. Men who reported that their teachers exerted strong press for enthusiasm, humanism, affiliation, independence, achievement, and supportiveness, or exerted weak press for compliance, tended to raise their aspirations for advanced training more than men not reporting such faculty press. Strong fellow-student press for estheticism also was related to an increase in aspiration.

Thistlethwaite and Wheeler (1966) studied the effects of teacher and peer subculture on student aspirations for a group of 1,772 students from 140 colleges. These students were surveyed at the beginning, middle, and end of college.

Multiple-regression equations were developed for predicting terminal dispositions to seek advanced graduate or professional training from eight precollege characterisitics for which the authors desired to control: sex, degree aspiration at college entrance, National Merit Aptitude score, father's educational level, mother's educational level, number of freshman scholarship applications, family financial resources, and probable major field of study. Residual scores, interpreted as indices of the extent to which each student changed his educational aspiration from the level predicted by his status on the eight precollege variables, were correlated with scores on 20 college press scales (about the demands, expectations, or activities most characteristic of teachers and students at the student's college) and a variety of items concerning experiences often considered critical in shaping students' motivations to pursue a scientific or scholarly career. In addition, a factor analysis of the college press scales was conducted.

Fourteen of 33 college press scales and three of nine factors correlated significantly with the residual scores for men, but none of the correlations with residual scores for women was statistically significant. The disposition to seek advanced training was shown by an increasing number of students as exposure to college increased.

Winter, Griffith, and Kolb (1968) were involved in a research program with the stated aim of developing a method for self-directed personal change and of understanding the psychological processes involved in successful personal-change efforts. The major emphasis of the method was on self-research. The individual was given responsibility for diagnosing his own problem, setting his own goals, and accomplishing change by his own efforts. When business school students participating in self-analytic groups used this method to change themselves in a previous study (Kolb, Winter, and Berlew, 1968), change was found to be related to the individual's commitment to his change goal and the amount of feedback given by other group members. Improving the change method to increase goal commitment and feedback increased the percentage from 5% to 61% for students experiencing successful change. The purpose of the present study, however, was to discover the characteristics which differentiated those *not* able to achieve personal change from those who were able to achieve such change.

A content analysis of self-descriptive essays written by college students revealed several distinct differences between those who attained successful change (N = 13) and those who were not successful in attaining change. Those experiencing change more frequently exhibited the ability to think conditionally about themselves and the ability to postulate future possibilities for oneself with the implicit recognition that these goals have not been attained. Those not experiencing change appeared deficient in these abilities and more frequently described themselves with little recognition of alternative possibilities. Secondly, those not experiencing change showed more confusion and uncertainty about their present selves. They expressed great concern about defining "reality," expressed the belief that they were playing artificial roles, were vague about how they were perceived by others, and were indecisive about their own thoughts and actions.

Success Viewed as Development of Self-Appraisal Habits, Realism, and Appropriate Aspirations: Published Literature.

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Development of Motivation to Succeed

It is assumed that a multitude of complex factors are instigating any behavior. Because of the number and the complexity of factors involved, and because many of them are not apparent, we cannot understand the real "why" of many actions that we see around us. All we can do is infer. Therefore, terms such as "motivation" came about to indicate that there are reasons for the behavior which are too complex to follow or which are not apparent to the casual observer. "Motivation" can allow a person to "understand" the behavior without having to really explain it.

There are many different definitions that have been given for the term "motivation." However, all of the definitions agree that when an individual exhibits active, integrated, directed behavior he is being motivated in some way. They would also agree that we keep our behavior going in a direction because of motivation, and it is also motivation that causes us to pick a new direction from time to time. Additionally, these definitions seem to agree that motivation involves both intrinsic and extrinsic stimulation (although some would emphasize one over the other).

Because of the vagueness of the term and because some people use it to explain research results for which they have no specific explanation, some people contend that the term "motivation" is not important and should be done away with. For example, after reviewing literature on motivation, Shaw (1967) noted a trend in this direction and concluded as follows:

> The concept of motivation appears to be changing in a subtle kind of way. While the concept of drive level persists, it is clear that those who have conducted research in this area now perceive that a host of variables, each one of which is in itself complex, are involved. If the present trend continues—and there is no reason to think that it will not—it is just possible that the term motivation may, in the not-too-distant future, have more historical than practical utility [p. 578].

The emphasis would seem to be toward examining specific situations, e.g., marriage, occupations, friends, neighbors, college, etc., and toward exploring biological, sociological and environmental, and perceptual determinants of specific motivational components within each situation. The motivational components, each which is complex in itself, can be broken down into three categories: instinctive and emotional (habit or reflex, drives, energies, anxieties, fears, and other such stimuli); purposive (positive and negative incentives or goals); and regulatory (weaknesses, counter-forces, perception of impending failure if his direction does not change, etc.).

It would seem, however, that the term "motivation" will continue to remain important for the social scientist because of the key role his subjects' concepts of it play in their behavior. Motivation designates a concept that is very important to the layman. A person's actions are often determined at least in part by how he perceives that his actions will affect the motivations and resulting actions of those around him. In addition, achievement motivation (or need to achieve) definitely seems to be a quantifiable variable. Much research has been conducted and continues to be conducted on this variable (*n*Ach), and a number of instruments to measure it have been developed. As Shaw (1967) concluded, studies of *n*Ach continue to move in the direction of examining more complex relationships with other personal and environmental characteristics; and there would appear to be other motivational factors involved in human achievement; but the term continues to merit promise and attention.

Success Viewed as Development of Motivation to Succeed: Selected Annotations

Breit (1969) studied the arousal of achievement motivation in college students. A total of 47 men at the University of California, Los Angeles, were given a 10-minute "creative-writing" exercise in which two arousal conditions were produced by varying the essay instructions. To 25 of the students, instructions for an internal ascription for success (*I*) condition were given. They were told about two students taking an exam where Frank, who studied harder, did much better than John, and then asked to write a one-page essay on "how you really do control what happens to you." In an external ascription for success (*E*) condition, the remaining 22 subjects read a story about a student who claimed "one is not responsible for achievement outcomes" because he did well on an exam although he did not study.

Following the arousal induction, students in both groups were measured for achievement motivation and conformity. The achievement motivation measure gave an index of the slope of attractiveness of success (obtained from responses to a list of nine occupations) shown in previous studies to be steeper for high than for low achievement-oriented subjects. A *t*-test comparison between the slope indices of the two groups and another between the conformity indices of the two groups indicated that the *I* Condition group had more achievement motivation and less conformity than did the *E* Condition group. The procedure apparently did arouse achievement-related needs, and the results "strongly suggest that cognitions concerning the locus of success mediate achievement-related behavior [p. 541]."

Bryan and Locke (1967) used ten male and ten female paid college student volunteers from the University of Maryland to study the effectiveness of specific goal setting as a means of increasing motivation. Four criteria of motivation were used: boredom-interest, degree of task focus (concentration), intensity of task focus, and experienced effort. The task was simple addition with each problem consisting of three 2-digit numbers. The experiment was introduced as a study of attitudes as a function of trial length. All subjects were told to do their best on each task. There were 12 task trials of steadily increasing length, and the subjects had 30 seconds between trials to fill out a separate rating scale for each criterion. On the basis of performance in relation to maximal ability and differences in attitude ratings toward the addition task, a low-motivation and a high-motivation group of six persons each were selected for two retests on the same task.

Two to three weeks after taking Test 1, both groups completed the same task trials again. This time the low-motivation group was given specific goals to reach while the high-motivation group was told to again do their best, and it was suggested they should do better this time because they had worked these same problems previously. Two to five weeks later, both groups returned for a second retest. Everything was the same except now the specific goal for each "low-motivation student" was 10% above his own best previous performance.

By the end of the second retest, the low-motivation group given specific instructions had "caught" the high-motivation group given instructions to do their best. They "caught" them both in terms of performance and in terms of favorable attitudes toward the task. The results suggest that specific goals can be used to motivate college students who bring a low degree of motivation to the task situation.

In a follow-up to the above experiment, **Locke** (1967) attempted to explore whether or not the positive findings of previous "knowledge of results experiments" could have resulted from different goal settings rather than from knowledge of results. A 2 x 2 fixed model design was carried out with the variables being knowledge of results versus no such knowledge and specific hard goals versus "do-best" goals. The sample consisted of 24 male and 12 female paid college student volunteers, and the task was simple addition of three 2-digit numbers presented on 3 x 5 cards from boxes holding 720 such cards.

The results of the second experiment indicated no difference between the knowledge and no knowledge of results group, while a significant goal effect was found in favor of subjects given hard goals. It was concluded that effects previously attributed to differential knowledge of results were actually due to different levels of motivation produced by the different goals.

Cortes and Gatti (1966), based on some of the research findings of McClelland and his associates, hypothesized that need for achievement (*n*Ach) would be related to a person's physique. In particular, they hypothesized that mesomorphy (those who are strong, hard, athletic and muscular) would correlate positively with *n*Ach. They tested out this hypothesis on a group of senior boys with a mean age of 17½ years who were seniors at a private high school in Boston. Also used was a sample of 100 delinquent boys with a mean age of $17^{1}/_{2}$ years who had been convicted and sentenced by a court. Seventy of the delinquents were institutionalized and 30 were noninstitutionalized.

The subjects in both groups were somatotyped (a quantification of the primary physical components of the human constitution) using the objective, consistent, and convenient method devised by Parnell.[1] To measure *n*Ach, each subject was administered a projective test, similar to Murray's *Thematic Apperception Test*, that McClelland had used in various countries for measuring *n*Ach as well as other kinds of motivation. Each sample was then split in two according to *n*Ach level and then chi-square tests were conducted with each subgroup further split, first on level of mesomorphy, then on level of ectomorphy, etc. Zero-order correlations were also computed between *n*Ach and score on each somatotype. The 100 nondelinquents were administered a second *n*Ach test, the *Decisions Test;* and the analytical procedures were reported for the nondelinquent group using the new *n*Ach scores.

A significant and positive relationship was found between mesomorphy and *n*Ach for both samples. Conversely, a significant negative relationship was found between ectomorphy and *n*Ach. Endomorphy also had a positive correlation with *n*Ach —.16, but it was not statistically significant at the .01 level. Although the results indicated that physique was a relevant variable in the area of *n*Ach, no information is provided about which variable came first, physique or *n*Ach, nor whether both variables were directly influenced by a third common factor.

Feather (1965) tested the hypothesis that subject expectations of success prior to task performance would be positively related to need for achievement (*n*Ach) in a situation providing the opportunity for personal accomplishment. The sample consisted of 168 male external students attending a vacation school at the University of New England, Australia. The subjects first completed the *Test Anxiety Questionnaire*. One week later they were tested for *n*Ach through use of the *Thematic Apperception Test* (TAT). The task consisted of an anagrams test with two different sets of instructions setting the experimental conditions. The task was presented as "moderately difficult" to 82 of the subjects and as "easy" to the other 86 subjects. Prior to commencing the task, all subjects in both groups rated their chances of solving all the anagrams on a 5-inch scale numbered from zero to 100 in equal steps of 20. In a postperformance questionnaire, the students were asked to estimate what they had considered their chances of success when the time was about half gone (middle expectation) and just before the time was up (terminal expectation).

[1] R. W. Parnell, *Behavior and physique: An introduction to practical applied somatometry.* London, E. Arnold, 1958.

Analysis of variance, *t* tests, and zero-order correlations were used to analyze the data. The results generally supported the hypothesis. In addition, it was found that initial expectation was negatively related to test anxiety. However, neither need for achievement nor test anxiety was significantly correlated with middle expectation or with terminal expectation. This suggests that once a person is involved in performance of a task, his present performance becomes the dominant influence in shaping his expectations of success.

An unexpected finding was a negative correlation between initial probability estimates and *n*Ach scores for the easy condition. (A positive correlation was found for the moderately difficult condition.) Since the task was presented as easy, perhaps other motivations such as the need for social approval entered into the situation. Another hypothesis suggested was that subjects will tend to state a subjective probability of success that will maximize their resultant motivation.

Grande, Simons, and Pallone (1967) related perceptions of the college experience to the academic motivation of 280 entering college freshmen at a private Midwestern university. The *College Student Questionnaire* (CSQ) was utilized to obtain scores for each of the Clark and Trow categories of perception of the college experience: (*a*) academic, (*b*) vocational, (*c*) collegiate, and (*d*) nonconventional. The *Personal Values Inventory* (PVI) was then administered to obtain information on need for achievement, direction of aspirations, socio-economic status, influence of precollege peer groups, influence of the home, independence of planning, persistence, self-control, and high school record—all variables which impinge upon academic motivation.

A medians test was conducted to see if the "collegiates," "academics," and "vocationals" comprised the same population with respect to scores on the PVI. The group was split into two equally sized groups according to whether students were above the median on the CSQ Collegiate Scale, split a second time based on CSQ Academic Scale scores, and split a third time based on CSQ Vocational Scale scores. For each pair of subgroups the percentages above and below the mean on each PVI scale were determined and chi-square tests computed. Statistically significant differences were found for the following academic motivation variables: direction of aspirations, influence of precollege peer group, influence of the home, independence in planning, persistence, and self-control. In general, on those academic motivation variables where significant differences were obtained, the "collegiates" were lower while the "academics" were higher, while the "vocationals" tended to be at the grand population median value.

Heilbrun (1963) studied social value versus social behavior (SV-SB) consistency using a sample of 161 undergraduate student (82 males and 79 females) volunteers at the University of Iowa who were administered the *Need Scales*, the *Edwards Personal Preference Schedule*, and the *Adjective Check List*. He tested the hypothesis that the social demands of college and feminine sex-typed roles were somewhat incompatible, resulting in sex-role confusion among college females and among males with a more feminine identification. Suggesting this hypothesis were earlier studies which indicated that a substantial number of college women feel called upon to pretend inferiority to college men while, in fact, conceiving of themselves as equals and that men tend to deny women the "most basic masculine attributes of action, vigor, and achievement effectiveness [p. 484]."

Comparisons between males and females using *t* tests were made for the original sample and also for a replication sample of 60 males and 62 females from another large undergraduate class at the university. It was found that in general females had greater SV-SB inconsistency, but this was restricted to a class of behaviors relevant to achievement motivation only and not to a wider range of interpersonal roles. The same findings were obtained when more feminine males were compared with more masculine males. However, no differences in SV-SB consistency as a function of masculinity-femininity of identification were shown by females.

Hill (1966) searched for autobiographical correlates of achievement motivation in 352 freshman men and 337 freshman women who were entering the University of Texas. All of these students wrote an autobiography following a structured outline which insured that all of the following would be covered: relationships with both parents, childhood, adolescence, current circumstances, self-image, and work and study habits. To increase the probability of accurate reporting, randomly ordered code numbers were assigned, and the subjects were assured that the material was absolutely confidential and would be used only by the research staff.

An abridged form of the *California Psychological Inventory* (CPI), including the Achievement via Conformity (AC) scale and the Achievement via Independence (AI) scale, was administered to all of the subjects under the supervision of a male examiner. Previous research suggested that a male examiner may more successfully arouse intellectual achievement motivation in women students, and especially in entering freshmen in a moderately selective institution, than would a female examiner. For each of the CPI achievement scales and separately for males and females, groups were formed of those scoring in the bottom 27% and those scoring in the top 27%. Using chi-square analysis, the four groups were compared on the variables resulting from the content analysis of the autobiographies.

High-AC male and female students perceived their parental and sibling relationships as more positive than did the low-AC groups. The high-AI groups reported a less favorable perception of their mothers than did the low-AI groups. High-AC females consistently reported themselves as happier, more successful, and better adjusted than did high-AC males. High-AI females were socially more successful, less self-critical, and better adjusted than were high-AI males. Apparently high-AC is quite rewarding for women but less rewarding for men. Concerning Achievement via Independence, it appeared that the motivation of high-AI men would have to be rewarded in ways other than those reported in their autobiographies for them to persist in this mode of behavior.

McClelland (1965b) coordinated an extensive research program which attempted to develop the achievement motive in adults. Drawing upon experience and results from this program plus the array of other research published in the area, he formulated a set of 12 propositions about motive acquisition. He then developed a table which listed seven input or independent variables plus five intervening variables conceived as entering into the motive change process and which outline his preliminary theory of motive acquisition.

McClelland's propositions are summarized as follows:

(1) The more reasons one has in advance to believe that he can, will, or should develop a motive and the more he perceives that developing a motive is consistent with the demands of reality (and reason), the more educational attempts which are designed to develop that motive are likely to succeed.

(2) The more thoroughly one develops and clearly conceptualizes the associative network defining the motive, the more likely he is to develop the motive.

(3) The more one can link the newly developed motive to related actions, the more that change in both thought and action is likely to occur.

(4) The more one can link the newly developed motive to events in his everyday life, the greater is the probability that the motive will influence his thoughts and actions outside of the training experience.

(5) The more one can perceive and experience the newly conceptualized motive as improving his self-image and improving on prevailing cultural values, the more the motive is likely to influence his future thoughts and actions.

(6) The more one commits himself to achieving *concrete* goals in life related to the newly formed motive and the more he keeps a record of his progress toward achieving those goals, the more the motive is likely to influence his future thoughts and actions.

(7) Changes in motives are more likely to occur in a warm interpersonal atmosphere where the subject receives honest and open support and where he is respected by others as a person capable of guiding and directing his own future behavior.

(8) Changes in motives are more likely to occur and to persist if the new motive is a sign of membership in a new reference group.

Rosenfeld (1966) studied the relationships of ordinal birth position in the family to affiliation and achievement motives in five studies of high school and college students. Four of the studies assessed need for affiliation (*n*Aff), need for achievement (*n*Ach), and test anxiety under intentionally neutral conditions, while the fifth assessed only *n*Aff under both neutral and aroused conditions. The samples for the studies were 85 male 12th-grade students in Dearborn, Michigan, and four student groups at the University of Kansas—87 students comprising an entire introductory psychology section, 162 freshman women in a residence hall, 97 freshman women from another residence hall, and 82 students in a social psychology class. Test anxiety was measured by the Mandler and Sarason *Test Anxiety Questionnaire*, while *n*Aff and *n*Ach were measured with the *Thematic Apperception Test* administered under standard group conditions.

Analysis of variance and *t* tests were used to analyze the group differences. None of the studies confirmed the hypothesis that first-borns are higher in *n*Aff than are later-borns. However, some support was obtained for the hypothesis that first-borns with siblings are higher in *n*Aff than are only children. Although first-borns tended to be lower than later-borns in test anxiety (which has been conceived of as an opposite to *n*Ach), tests of the hypothesis that first-borns are higher in *n*Ach than later-borns were generally negative. Complex interactions between sex, ordinal position, and stimulus items were discovered when exploring *n*Ach. It was suggested that relationships found in previous studies between ordinal position and the measures of motivation may have resulted from typically uncontrolled testing conditions.

Kahl (1965) had called into question McClelland's (1961) contention that need for achievement (*n*Ach) is vitally linked to occupational attainment. McClelland stated that the individual who has a "need to achieve" will tend to express it in the occupational realm. Kahl's reason for questioning McClelland's formulation was that much research had found only very small relationships between *n*Ach and occupational achievement values, norms, and goals. He hypothesized that achievement on the level of psychological motivation was different from achievement on the cultural and social level of group norms which specify the goals toward which *n*Ach is directed.

Scanzoni (1967) decided to study the hypothesis that achievement motivation as described by McClelland should be differentiated from occupational achievement goals as described by Kahl. A large, mostly white, metropolitan high school in a Northern city where students came from all different socioeconomical levels provided the sample for the study. A 66-item questionnaire on socialization experiences and on occupational achievement values was administered to 504 juniors and seniors taking a required social studies course.

Zero-order correlations were computed between occupational achievement values and the kinds of child-rearing practices claimed by McClelland to lead to *n*Ach. A complete lack of meaningful relationships was found for both sexes. The results therefore suggested that Kahl's hypothesis has a certain amount of validity.

Success Viewed as Development of Motivation to Succeed: Published Literature

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Vocational Development

A person's vocation or his career is presumed to involve more than just making a living. It is generally acknowledged that colleges should help students decide on and grow into an occupation that will provide them with a livelihood, but more than that a career which will be fulfilling and rewarding to them and which will provide maximum benefit to society.

The major reason most students are going to college, and this is especially true of males, is to prepare themselves for a vocation. This is even true of private liberal arts colleges. The parents, the politicians, and the lay public also tend to see vocational preparation as the colleges' top priority. However, except for vocational-technical schools and many community colleges, most higher education institutions probably hold other goals to be just as important. This point was illustrated by Borow[1] as follows:

> The N.O.R.C. Webster Grove study confirms, at least for boys, what survey after survey dating from the late 1920s has shown and what many in college humanities departments and those who draft the high-minded sections of college bulletins on philosophy and aims promptly forget. I am referring to the fact that entering students, especially males, consistently place a high premium on the vocational objectives of college training. Typically, they say that preparation for vocational life was a prime mo-

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[1] Borow, H. Student decision making: When and how. In K. J. McCaffrey and E. King (Eds.) *College/career choice: Right student, right time, right place.* ACT Monograph No. 9 (Iowa City, Iowa: The American College Testing Program, 1973) pp. 33-43.

> tivator in their decision to enter college, and that, further, they look to college as a means of identifying a suitable field of work, of obtaining appropriate training in that field, and of preparing themselves to obtain a better job in what they see as a competitive and highly differentiated market. Not surprisingly, then, they want an attractive and congenial job, although they may not yet be ready to name it specifically, and they see the college degree as giving them a trump card to play. Almost 90% of the Webster Grove boys and girls looked to college as a way of discovering an interesting field of work, although a substantially higher percentage of the boys (85% vs. 63%) thought of an attractive position as "a job with a really good salary [pp. 38-39]."

The importance students place on the vocational preparation aspects of a college education is demonstrated by the growing discontent with college experienced by students during the early 70s as many graduates from college could not find jobs in their chosen field.

The dawn of the age of automation and the space age and the rapid strides in technology during the last two decades are continuing to increase educational requirements for a large part of the world of work. In addition, workers displaced from their jobs by these technological changes are having to be retrained. The colleges and universities of our country are called on by society to help meet these needs.

Success Viewed as Vocational Development: Selected Annotations

Astin (1965) attempted to identify some of the effects of different college environments on the career choices of exceptionally able students. The sample for the study consisted of 3,538 male undergraduates at 73 colleges who had been honored as finalists or who had received a letter of commendation from the 1957 Merit Scholarship program. In order to roughly equate the contribution of each institution in the analysis, a subsample of 1,010 students was selected in such a way that no single institution contributed more than 25 subjects to become the "college effects sample." The remaining 2,528 students were used to develop adjustment indices to control the college effects sample for initial choice of major field and initial choice of a career. Then step-wise multiple-regression analyses were conducted to adjust four different college graduation career-choice criteria for 19 other student input variables. For each criterion, input variables were permitted to enter the equation until no additional input variable was capable of producing a reduction in the residual sum of squares ($p < .05$). The four criteria of college choice gathered, using a questionnaire at the time of graduation, were (*a*) realistic choice, (*b*) intellectual choice, (*c*) social choice, and (*d*) enterprising choice.

The effects of the college environment on each of the four types of career choice were determined by permitting the college characteristics to enter the regression equation after the input variables had been controlled. The 11 college environment measures consisted of the eight scales of the *Environ-*

mental Assessment Technique (student body size, ability level, and the percentage of students majoring in each of Holland's six general fields of study) plus institutional affluence, masculinity, and homogeneity as had been previously identified in a factor analysis of 33 college variables. Although the significant correlations were quite low, they supported the idea that a student's career choice is affected in a way that causes it to approach the model career in his undergraduate college environment. In other words, "a student's chance of eventually pursuing a particular type of career appears to be increased somewhat if he attends a college in which a relatively high proportion of the other students are planning careers of that type [pp. 33-34]."

Baird (1969) examined differences between college freshmen who had decided on a vocation and those who had not decided on a vocation to see if lack of such a choice appeared to result from student immaturity. Two separate studies were used to explore this question.

The sample for the first study consisted of 6,289 male and 6,143 female freshmen at 31 colleges throughout the country. The *American College Survey, Vocational Preference Inventory, Extracurricular Achievement Record, Preconscious Activity Scale,* and *Interpersonal Competency Scale* were the instruments used for the study; and they were administered near the end of the freshman year. Rather than use statistical tests to examine mean differences, such differences were merely observed to see if they were as large as one-quarter or one-third of the overall standard deviation. A total of 451 males and 295 females were undecided on a vocational choice at the end of the freshman year. The only real difference seemed to be that the undecided students were not nearly as vocationally oriented.

The second study involved a sample of 59,618 college-bound students who took the *American College Test* (ACT) in 1965-66 and who had indicated that they planned to obtain a bachelor's degree or higher. A total of 13,695 of these students were undecided on a vocation. Data for the study were ACT scores, high school grade point average, and "most important goal in attending college out of ten listed." No differences between the decided and the undecided college bound students on academic aptitude and high school grades were found. Once again, undecided students tended to be less vocationally oriented, and they were oriented more toward the intellectual than were the decided students.

It was concluded that there is no evidence to support the notion that most undecided students are maladjusted or abnormal. A further conclusion was that the freshman whose only problem is a lack of a vocational decision can probably be helped to reach a decision, but that he should be told that being undecided about a career not only is common but also may even be beneficial. He needs to realize that vocational indecision does not make him different from other students.

Folsom (1969) examined *College Student Questionnaire* (CSQ) scale differences among Holland's six personality types which are the foundation of Holland's theory of vocational choice. The sample for the study consisted of 554 males and 449 females at the University of Maine who responded to the CSQ prior to enrolling as freshmen in 1966. The students were categorized into the six personality-type categories according to their intended major, using a classification scheme that had been developed having three judges classify the 69 college majors listed on the CSQ into the six categories. The Bartlet Test was then used to test for homogeneity of variance among the six groups on each CSQ scale. After the Bartlet Test results were found to be nonsignificant ($p < .05$), the group means were compared for each scale using analysis-of-variance procedures. For those scales having a significant F value ($p < .05$), Duncan's multiple-range test was employed to determine which group pairs were accounting for the significant F value.

The CSQ scales provided the basis for a comparison between Holland's descriptions of the six personality types and the way students in each group described themselves, providing concurrent validity information relevant to Holland's position. With the exception of the enterprising type, Holland's descriptions of the personality types were generally consistent with the ways in which the students described themselves using the CSQ.

An important goal of the predominantly Negro college is to enhance its students' capacity to choose an occupation rather than have the occupation be forced on them. For the college to perform this role, it is necessary to understand how social and family background, motivational characteristics, and certain educational experiences encourage or constrain consideration of alternatives and recognition of choice. Therefore, **Gurin** (1966) studied the effects of social class and family on the choices of students at ten predominantly Negro colleges in the South. Random samples of 50 males and 50 females from each class level at each college were administered various questionnaires in the fall of the year which gathered data on family background, high school experiences, educational and occupational goals, motivational characteristics, political and social attitudes, and college experiences. For purposes of a later study to explore the effects of the different colleges on freshman occupational aspirations, some of the questionnaires were readministered to all freshmen in the sample at the end of the year; but the focus in this study was on initial response.

Occupational choices were evaluated on several different dimensions: prestige, ability demands, personal desirability, and nontraditionality. For each of these dimensions, occupational choice was related to the various independent variables using analysis of variance and chi-square analysis. Interestingly, social class effects on aspiration were conditioned by how long the student had been in college. When year in college was controlled, almost no social class differences were found for other than freshmen; and this was true for both men and women. These data suggest that college had the effect of minimizing the effect of social class differences on occupational aspiration, so that by the senior year it was almost impossible to differentiate any of the dimensions of aspiration according to the class backgrounds of the student. The major effect that did hold for seniors was the negative effect that strong parental influence had on how nontraditional the male's occupational choices were.

Social class did have major direct and indirect (through class-tied parental influence patterns) on the occupational choices of freshmen. High social status parents, as well as those who had the greatest influence on their children, seemed to encourage certain kinds of choices but to discourage others. For men students, for example, high-status parents facilitated occupational choices that were prestigeful and highly demanding of ability, but discouraged the choice of highly nontraditional occupations. For women students, high status parents facilitated the choice of conventional occupations and roles socially appropriate for females, but discouraged the choice of demanding and difficult occupations.

Heilbrun (1969) related the degree of positive and negative vocational patterning on the *Strong Vocational Interest Blank* (SVIB) for late adolescent college students to the following: (*a*) type of parental identification, (*b*) masculinity-femininity of parental identification model, and (*c*) sex of offspring. The sample was made up of undergraduate students (47 males and 33 females) at Emory University. In addition to the SVIB, the *Adjective Check List* was also used.

An analysis of variance yielded results consistent with prior studies. Identification with father tended to be associated with a higher incidence of positive career interests in the son. A denial of interests in specific careers was mediated by identifying with either parent, given the appropriate sex typing of that parent.

Hind and Wirth (1969) explored the effect of university experiences on the occupational choices of undergraduate students. They hypothesized that undergraduates in *selective* universities would tend to change their occupational aspirations away from primarily academic toward less academically demanding occupations no matter what their level of academic performance in college. Male students who enrolled as freshmen in September of 1961 and progressed continually toward a bachelor's degree were asked to report their occupational aspirations at four different times: (*a*) in their application for admissions, (*b*) at the time of enrollment, (*c*) six months after graduation, and (*d*) almost two years after graduation. Data were also obtained concerning academic major and cumulative grade point average for each student in the sample for each quarter of enrollment.

The original hypothesis was not supported by the data. The data suggested that these high-ability students were turned off by academic careers and traditional professions primarily if they received low average grades. Students receiving high college grades tended to remain in the field of their initial choice. An explanation for this result is that students as they progress through the university are in competition with equally bright students for a limited number of high grades. Since students tend to measure their ability with reference only to their classmates rather than to their age group as a whole, those receiving low grades would be expected to evaluate their academic ability negatively. Thus, they would be predicted to change to fields for which the highest grades are not a prerequisite, while those who are successful would tend to remain in their chosen field.

The results suggest that four years of highly competitive undergraduate education seem to drive many students away from occupations for which they are apparently qualified. If current practices on a campus are in fact driving capable students away from fields which they intended to pursue or in which they could make significant contributions to society, it may be that the university's policies, particularly grading policies, should be called into question. Whether the university's policies should be changed depends on, among other things, just how good the students are that are being lost from intellectually demanding fields and whether they are in fact capable of reaching their initially stated goals.

Holland and associates (1969) developed a revision of an earlier classification scheme (Holland, 1966) which organized occupations according to degree of psychological "relatedness" following Holland's theory of personality. Because of its theoretical simplicity and empirical base, the classification system was claimed to have much potential value for the vocational guidance of college students and for research. For example, a student could be directed to specific occupations that are similar to his initial vocational choice in psychological terms. Furthermore, the system provides an easy and reliable way for a counselor to tell how similar or dissimilar are a student's first and second vocational choices. The more similar are a student's first and second vocational choices, the more likely is the student to retain his first choice (Holland and Lutz, 1967).

One of the studies useful in the development of the revised classification system (Holland and Whitney, 1968) found the classification system to be unusually predictive of vocational aspirations over an 8- to 12-month period. Using the classification system, Holland and Whitney also found that changes in the occupational aspirations of college students usually follow orderly or lawful patterns. A total of 79% of the men and 93% of the women in freshman and sophomore samples (several thousand students) indicated successive vocational choices that were described as being definitely related, or lawful, to their initial choices.

To obtain the occupational classifications, the *Vocational Preference Inventory* (VPI) was administered to a large sample of subjects (23,078 4-year college students, and 20,313 2-year college students, plus some employed adults in specific occupations). A profile of VPI scale means was calculated for subjects classified in each occupational category (planning to enter that occupation or already in that occupation). Four-letter codes with each letter representing a VPI scale were then formed for each scale. The letters for an occupational code represent the four scales having the largest means for people in that occupational classification, and the four letters were ordered according to scale amplitude.

After intercorrelations among the six scales were calculated, it was noticed that vector lines representing the correlation value between each pair of scales could be arranged into a hexagon. The hexagon model provides an easy way for people (e.g., counselors) to remember which of the six broad occupational categories are most similar and which are the most dissimilar to any of the categories.

Kipnis, Lane, and Berger (1969) hypothesized that college students classified by test scores as impulsive would not be attracted to courses involving mathematics and physical sciences. This hypothesis was tested in two different studies. The sample included the freshman class at the University of Delaware, totaling 628 students.

Scores on a specially prepared 41-item biographical inventory and *Scholastic Aptitude Test* (SAT) scores were used for the first study which focused on choice of curricular major. The students were split into two ability groups using the SAT median as the dividing point; and each ability group was split into those enrolled in the College of Arts and Science, those enrolled in the College of Engineering, and those enrolled in the other colleges of the university. Group comparisons were then made using analysis of variance. Among the more intellectually able students, high-impulsive students less frequently enrolled in the College of Engineering; and those who did enroll in that college tended to do less well and to drop out more often during their first two years of college.

In the second study upperclassmen majoring in mathematics and physical science and those majoring in business were compared (using analysis of variance and correlations) on impulsiveness and rated on satisfaction with their major. The science and mathematics majors had lower impulsiveness scores than did the business majors, and high-impulsive science majors were less satisfied with choice of major. A zero-order correlation of −.67 was found between impulsiveness and satisfaction with major for those enrolled in science and mathematics. It was also found that this relationship was moderated by intellectual ability. When the group of science and mathematics majors was limited to students with SAT Total scores of 1,000 or more, the correlation rose to −.88.

Osipow and Gold (1967) explored factors that might contribute to the development of inconsistent career preferences and tested the hypothesis that inconsistencies in occupational preferences reflect general personal and familial discord. Only by understanding why such inconsistencies occur can effective college aid in resolving such inconsistencies be provided.

From the entire population of entering male freshmen at Pennsylvania State University in 1966, two samples of 101 each were selected using random methods. The one group consisted of students whose first and second occupational choices were two to four categories apart in Roe's occupational classification system, while the other group had first and second choices that were zero to one category apart. From college admission data which were available, the following variables were utilized in the study: (*a*) degree of agreement between first occupational choice and curricular major chosen for enrollment, (*b*) student's expressed certainty about his career plans, (*c*) parental support of and satisfaction with student's educational and vocational preferences, (*d*) health and physical disabilities and general attitude toward health and physique, (*e*) *Scholastic Aptitude Test* Verbal and Mathematics discrepancy scores, (*f*) *Strong Vocational Interest Blank* pattern similarities to first and second occupational choices, and (*g*) stability, self-sufficiency and dominance scales of the *Bernreuter Personality Inventory*.

Comparisons between the two groups were made using *t* tests. The groups were found to be somewhat different in general academic ability, and the degree to which the interest inventory patterns supported the student's occupational choices. No significant differences on the family variables were noted. It was concluded that inconsistency of career preferences exhibited by incoming freshmen may in most cases merely be the result of students' recognition of their limited abilities.

Walsh and Lacey (1969) attempted to determine if college students assigned Holland's personality types would perceive themselves as changing in the direction consistent with the profile for their type. The sample included 151 male college seniors at Ohio State University who were broken down into six groups (using curricular major) representing each of Holland's personal orientations. Six scales, one for each of Holland's personality areas, were constructed and used to collect data from all students in the sample; and these scales attempted to measure the impact of the college experience as perceived by the students.

The null hypothesis was that there would be no difference between mean scores for the six groups on a given scale. The hypothesis was tested using analysis of variance on the scale scores. Significant main effects were found for the Realistic, Intellectual, and Artistic scales.

The results suggested that perceived change in college for those three groups was toward being more like the profile for the type to which they had been assigned.

For 8,483 male sophomores at 248 heterogeneous colleges, **Werts** (1967) studied changes in career plans during the freshman year for those who upon enrolling were planning careers as engineers, teachers, physicians, businessmen, lawyers, chemists, accountants, and physicists. Those who changed career plans during the freshman year were compared with those not changing career plans on father's education, father's occupation, and ability level (high school GPA, college freshman GPA, and *National Merit Scholarship Qualifying Test* scores), using chi-square analysis. Results of the study indicated that in terms of ability and social class background, students who were unlike the majority of other students with the same initial career choice tended to change their career choices to fields where they would be more like other students. In addition, students choosing the same occupations as their fathers were less likely to change their career plans than were others making those initial career plans. The results seemed to support the "birds of a feather" theory which stresses changes that lead to greater homogeneity within each career group.

Werts and Watley (1968) later raised questions about the conclusions of the earlier study. They wondered if it were *not* possible for a student whose characteristics were consistent with those typically found in the career field he initially selected to become "incompatible" later because his characteristics changed. Conversely, they wondered if a student who was "deviant" in relation to his initial occupational choice could become "nondeviant" during his college years as a result of socialization experiences that made him more like the others in his field. Therefore, the data for the earlier study were reanalyzed to test out whether these additional hypotheses would be tenable.

If the "birds of a feather" model applied, each career-field group should have become more homogeneous on the socioeconomic and ability measures, and the differences between the groups should have increased during the freshman year in college. Analysis of variance across 48 career-field categories for about 16,000 males revealed decreasing *F* ratios for aptitude scores and high school grades (inconsistent with the theory) and increasing *F* ratios for college grades and father's education (consistent with the theory). Identical analyses across fields were conducted for about 14,000 females. Results for females fit the model even less because for those there was also a declining *F* ratio for father's education.

One possible implication of the results is that students' perceptions of their academic ability were modified in direct relationship to their academic performance and that these changed perceptions resulted in "appropriate" career-field changes. It was concluded that the "birds of a feather" model should probably be replaced by a model—yet to be devised—that considers how changes in personal characteristics, such as self-perception of academic ability, affect career choice.

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SUCCESS VIEWED AS SOCIAL DEVELOPMENT

There appears to be general agreement that the college experience should help a student develop socially. It probably would not be too extreme to see social development and academic achievement and learning, along with occupational development, as the prime criteria for college success.

The most important social interest for many students may be popularity or to be regarded as a leader on campus. For some students, the goal may be to develop social finesse and skills that will be valuable in business or in other endeavors after graduation from college. Some students may merely desire to "get along with others" or to develop cherished friendships or to find a spouse. And, of course, there are the students who primarily desire to achieve recognition in some extracurricular area. From the viewpoint of the college and society, and perhaps even for some students and their parents, an equally important goal will be to develop a respect for others and their views.

Fraternities and sororities have often given development in the social area as their primary basis for existing. It would be interesting to know to what extent changes in social expectations are responsible for the relative demise of these organizations. Perhaps future research can give them new life by pointing out comprehensive factors needed for maximum social development to take place and ways to improve on their methods of social development.

This sociological area seems to be increasing in popularity as an area for research. Hoyt's review of the literature concluding that college grades are not related to vocational success after college suggests one reason for the interest in social development.[1] A second reason is that vocational success and adjustment often seem to depend (assuming the person has the ability and interest required) largely on social factors and ability to get along with others. The importance of social factors is clear for sales, persuasive, and other verbal occupations; but it is also important for almost every other occupation. Inability to get along with associates is probably cited more often than any other reason for termination of employment.

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[1] D. P. Hoyt, ***The relationship between college grades and adult achievement: A review of the literature.*** ACT Research Report No. 7 (Iowa City, Iowa: The American College Testing Program, 1965).

Development of Social Awareness, Popularity, Social Skills, and Interpersonal Relationships

Everyone has social needs, and such needs can be satisfied only by the reaction of and/or the interaction with other people. Social approval is a particularly important motive for human beings, and college students are no exception. For example, more students would probably prefer to be a campus leader, a varsity athlete, a homecoming queen, or just socially popular than to be valedictorian of their class. Many of them would see such accomplishments as real college success, even if they were *not* doing well academically.

Young people in high school and college seem to have especially strong needs for acceptance by age and sex peers. As a result, strict conformity to youth norms and current fads is *not* uncommon among young people, even in this day of individuality and "doing your own thing." On the other hand, there are many diverse peer groups on a typical campus to which students can relate and whose values they can emulate. Such diversity of groups and their interaction with students having quite different characteristics result in the need for research in this area to be differential and selective rather than general and completely cross-campus.

Campus officials and parents are especially concerned about social maturity. However, blind conformity to campus-culture expectations and mores is not what college officials would perceive as social maturity. On the other hand, conformity to social expectations is also important to their view of social development. The emphasis on social status, being accepted, and being well thought of continues after college and seems to saturate our entire society. Being "too different," ill at ease, or lacking certain common social skills will lead to rejection or to a lack of acceptance by the group or person with which the individual desires to associate. A lack of social acceptance in college or after college can have serious consequences for the student's self-concept and for almost every other type of student development and adjustment discussed in this book. Such potential consequences emphasize how important it is for each student to continue developing interpersonal awareness and human relations skills that will give him reasonable access to the social groups and statuses to which he realistically aspires.

Success Viewed as Development of Social Awareness, Popularity, Social Skills, and Interpersonal Relationships: Selected Annotations

Several researchers had found that if one person finds another person's behavior "rewarding," he will tend to like that person. **Aronson and Linder** (1965) wished to test the additional hypothesis that a gain in esteem is a more important reward than invariant esteem and that loss of esteem is a more potent "punishment" than invariant negative esteem. Therefore, they randomly divided 80 female students in introductory classes at the University of Minnesota into four experimental groups. Visually separated from each other in the laboratory experiment setting, the coeds orally interacted in 2-person groups over a series of brief meetings. Each subject for all four groups was told by the experimenter that since she had arrived before her partner for the experiment, she would be his helper and assist him perform a verbal conditioning experiment on the other student (who was actually a confederate). The subject was informed that the partner would be told it was an experiment of how people form impressions of other people, while in actuality the purpose was to see if his special procedure could increase the rate of plural nouns employed above that obtained in the partner's control conversation.

The same confederate was used throughout the experiment, and her evaluations of the subjects were different for the four groups as follows: Group 1—evaluations all highly positive, Group 2—evaluations all quite negative, Group 3—evaluations negative at first but gradually became positive, and Group 4—evaluations positive at first but gradually became negative. After each 3-minute meeting with their partners, the subjects were allowed to eavesdrop on the conversation between her partner and the experimenter (in which the partner evaluated the subject). The subject had been asked to count the number of plural nouns used by her partner in reporting to the experimenter.

At the end of the experiment, the girl was interviewed by the experimenter's research supervisor who was ignorant of the subject's experimental group membership (in order to avoid bias). This neutral interviewer informed each subject that one's feelings toward the other can affect voice inflection; and in order to account for this in the statistical analysis of the data, he needed to know what her feelings were about her partner. It was found that the subjects liked the confederate *best* when her overheard evaluations moved from negative to positive and *least* when her overheard evaluations moved from positive to negative.

Berenson, Carkhuff, and Myrus (1966) selected 18 men and 18 women from the undergraduate student body at the University of Minnesota for a study of the interpersonal functioning of college students and the effect of training upon their functioning. One-third of each sex was placed into each of three groups: (*a*) a training group which employed 16 hours of quasi-therapeutic experiences over an 8-week period plus previously validated research scales that measure empathy, positive regard, genuineness, concreteness, and self-exploration; (*b*) a training control group which did everything the first group did (the trainers were equated on interpersonal functioning) with the exception of the employment of the research scales; and (*c*) a control group which received no training experience.

Pre- and postexperiment measures were taken for all three groups on the basis of four indices which assessed empathic understanding, positive regard, genuineness, concreteness, and the degree of self-exploration elicited in others. The four indices were objective tape ratings, inventory reports of standard interviewees, inventory report of significant others, and inventory self-reports. No statistically significant differences in pre-experiment levels of interpersonal functioning (using *t* tests) were found for the three groups, with overall interpersonal functioning being at a low level. It was suggested from this result that college students generally function at less than minimally facilitative interpersonal levels when they are cast in a helping role.

In general, the study hypothesis was supported by the post-experiment data. The training group consistently demonstrated the greatest amount of change in interpersonal functioning, and the training control group demonstrated higher levels of post-experiment interpersonal functioning than did the control group on a majority of the comparisons made.

Broxton (1962) explored the interpersonal attraction factors involved in roommate satisfaction for college women. The sample consisted of 289 freshman women in three residence halls at the University of Kentucky who had been assigned roommates by the housing office prior to their arrival on campus. At the beginning of the school year, all of the women were informed that roommate changes would be allowed after five weeks, by which time most initial interpersonal exploration among college students has taken place according to previous research. At a group meeting in December, the subjects were encouraged to change roommates at the end of the first semester because the opportunity of living with two different students, instead of one, would be an enriching freshman experience. They were assured that changing roommates did not imply a failure to adjust.

Those who had changed roommates were compared with the satisfied roommate who did not change using responses to the *Personal Schedule Inventory*, a personal background instrument. Chi-square analysis revealed that the satisfied roommates were more similar than the other roommates on certain moral factors (church attendance, church approval of drinking, personal approval of smoking, and personal approval of drinking); studying and sleeping habits; father's education and salary; and size of high school graduating class. Although the two groups did not differ significantly on church affiliation, average church attendance most effectively differentiated the two groups. Similarly, although the two groups did not differ on actual drinking habits, the satisfied roommates were more similar on their attitudes toward drinking. One of the most striking discrepancies between the two groups was their percentage of agreement on approximate number of study hours. Concerning sleeping habits, similarity in sleeping with the window open was the major differentiating factor.

Coombs (1969) proposed a cyclic model for explaining the relationship between social participation, self-concept, and interpersonal valuation. The three propositions were (*a*) an increase in participation in a specific social situation leads to increasingly favorable evaluations from others in such situations, (*b*) an increase in favorable evaluations from others in a specific social situation leads to a more favorable self-concept with regard to such situations, and (*c*) an increase in favorable self-conception pertaining to a specific social situation leads to greater participation in such situations.

To test the model, advantage was taken of a student-sponsored dance at a large campus where 220 male and 220 female college students were paired by a computer. Only 2.6% of the paired couples knew each other slightly from before, and only 0.8% of them were well acquainted, so the confounding effects of previous interaction were largely eliminated. A 6-month longitudinal study beginning with this initial encounter involved the subjects completing three different questionnaires concerning interpersonal responses and the effect of self-concept and previous dating participation on those responses.

Zero-order correlations between variables of social participation, self-concept, and interpersonal valuation, and partial correlations with certain variables held constant tended to support the model; and none of the data were incongruous to the model. This general consistency of empirical evidence seemed to suggest that the model may have potential for explaining voluntary participation in social settings.

Horowitz (1967) correlated Project Talent scores with popularity and rejection scores achieved with members of their own and the opposite sex for 1,437 male and 1,505 female students at eight high schools. The high schools selected were about the same size (the number of students in each grade ranged from 57 to 161), but each one came from a different one of the eight regional areas defined by the U.S. Office of Education. A total of 15 predictor variables were selected from 56 Project Talent variables on the basis of preliminary analysis results. Four kinds of sociometric scores served as the criteria: (*a*) same sex attraction score, (*b*) opposite sex attraction score, (*c*) same sex rejection score, and (*d*) opposite sex rejection score.

Zero-order correlations and a multiple correlation with the predictor variables were computed for each criterion variable. It was found that popularity correlated higher with the predictors than did rejection criteria. In multiple-correlation prediction, the best predictors for both popularity and rejection were English test total score, information about and interest in sports, and socioeconomic status. A particularly important additional variable for males' popularity was their knowledge of sports. Although athletes were chosen more frequently than were scholars, the "athlete-scholars" were most popular of all. Some of the predictor variables seemed to relate only to popularity or only to rejection.

Marston and Levine (1964) studied the relationship between interaction patterns reported in a questionnaire and the typology of group orientation yielded by the *Bass Orientation Inventory* for a sample of 360 college students at Purdue University. The inventory was designed to classify a person's social orientation as task-oriented (concerned about getting the job done), interaction-oriented (intrinsic satisfaction from the mere fact of interacting with others and is more concerned with harmonious relationships with others than with solving the group's problems), or self-oriented (concerned primarily with the direct reasons of the interaction to himself, with the group acting as a sounding board for the expression of his personal needs). The *Orientation Inventory* was included along with questions on interaction patterns, political attitudes, and biographical background. Students falling into Bass' three types were compared on the other data gathered using chi-square analysis.

The results of the study indicated that females were more interaction-oriented, while engineering students were more task-oriented. The task-oriented students preferred friends having an intellectual-cultural orientation. Self-oriented students were less frequently officers of extracurricular organizations. Interaction-oriented students reported discussing various topics more often, and they tended to belong more frequently to fraternities and sororities.

Reilly, Commins, and Stefic (1960) studied the "complementarity" of personality needs in friendship choice among 25 pairs of sophomore and 25 pairs of junior female Catholic college students using the *Edwards Personal Preference Schedule* (EPPS) and the Allport-Vernon *Study of Values* (SOV). Each girl completed the EPPS and two days later predicted her partner's need profile on the EPPS. Relative scores of the six values on the SOV were also obtained.

Correlations were computed for self-perceived needs of friends, phenomenal needs of friends, and self-perceived needs of nonfriends with scores on each of the 15 EPPS personality need scales. No relationship was found in regard to self-perceived personality needs of friends, nor was there any evidence of mutual need satisfaction between friends. Friends did not see themselves as more consistently complementary, nor was there a relationship of similarity of personality needs. Friends did tend to be slightly similar in values.

Rosenfeld and Nauman (1969) explored the effect of dogmatism upon the development of informal relationships using two 34-person units of a large women's residence hall at the University of Kansas. Freshman women were selected because they were grouped according to age, and they usually lacked previous experience in extended peer-group living away from home. During the fifth and tenth week of the semester the students who had agreed to participate in a "study of social living" responded to the *Rokeach Dogmatism Scale* and several other instruments which gathered data on demographic characteristics; attitudes; interests; and motivation for achievement, affiliation, and approval. During those same weeks, a specially designed questionnaire asked each woman to describe her relationship with each of her 33 dormitory peers. Using matrices of responses, estimates of each woman's "typical interpersonal standing" within the group were derived from the average ratings she received along each dimension. Another instrument was also administered which gathered the frequency and time spent in interpersonal contact and communication with the subject. Communication data were gathered for four content contexts: (*a*) academic, (*b*) intellectual, (*c*) personal, and (*d*) social.

Zero-order correlations were calculated between dogmatism and the various interpersonal measures. Although there were differences between the two dormitory units, a general finding was that the dogmatic subjects increasingly received negative ratings from their peers. However, the dogmatic subjects kept up contact with their peers by initiating most of the interactions. (There was no relationship between dogmatism and the amount of contact with peers.) The dogmatic women appeared to be insensitive to the negative receptions they received from their peers.

Secord and Backman (1964) studied interpersonal congruency, perceived similarity, and friendship in a sample of 152 college students. Subjects described themselves and their best friend of the same sex (one week apart) on ranking scales for ten needs which had been developed from the *Edwards Personal Preference Record*. For each self need, the students were divided into those with a *z*-score above and below the mean on that need. For each resulting pair of groups, *t*-tests were then made to compare *z*-

score means for the way they perceived their friends on a particular need. This procedure was repeated for each of the ten group pairs on each of the ten needs, resulting in a total of 100 *t*-test comparisons.

Twenty-two of the 100 *t* values were significant at the .05 level with almost half of them significant at the .001 level. Six of the *t* values were interpreted as resulting from both need similarity (the perception by a person that his friend is similar to himself) and congruency (which exists when the person's perceived self and the self that the person perceives his friend to perceive are congruent), ten of them were interpreted as resulting primarily from similarity, and five of them were interpreted as resulting primarily from congruence. Both of these conditions were therefore suggested to be important for a friendship to develop.

Taylor (1968) hypothesized that there would be differential rates of increase over time in intimate and nonintimate levels of mutual activities and information exchanges between roommates in college and that specific factors can be identified which account for such differences in the development of interpersonal relations. In particular, it was predicted that dyads composed of two high-revealing individuals (to best friend as target) would exhibit a greater breadth of penetration (the variety of activities engaged in, the amount of information exchanged, etc., per unit time) than dyads composed of two low revealers.

A self-disclosure questionnaire, which requested students to indicate whether or not they had revealed information about themselves to their roommates in each of 40 content areas, was administered to 695 freshman men during their first week at the University of Delaware. Pairs in which both members were strangers before coming to the university and in which both members were either high or low revealers were selected as subjects for the study. Fifteen dyads were composed of high-revealing members and 15 were composed of low-revealing members, with additional pairs of subjects being used as a control group. The students also completed a 30-item roommate questionnaire in which they indicated whether they had engaged in particular activities during the preceding three weeks (e.g., have you borrowed from or loaned money to your roommate? Have you invited your roommate to your home?). The subjects were told that they would be participating in research related to Navy future weapons systems, and along with this they were interested in how men go about getting to know each other.

Both questionnaires were readministered to the subjects during weeks 3, 6, 9, and 13 of the semester. A 3-dimensional factorial design with repeated measures was used for the study with the independent variables being time, intimacy level, and predisposition to reveal oneself to others. The dependent variables were the number of mutual roommate activities and amounts of self-disclosure to roommate. Results were that mutual activities and self-disclosure both increased over time, although nonintimate or superficial exchanges of activities and information continued to occur to a greater extent that intimate ones for all groups. In addition, dyads composed of high revealers engaged in significantly greater amount of exchange at all points than did the dyads composed of low revealers, and this result was especially true for intimate areas of exchange. It was concluded that the results offered support for a general theoretical framework of social penetration processes.

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Development of Leadership Skills

A question of first importance about leadership in college students asks what characteristics are necessary for effective leadership in various types of groups and for various kinds of situations. Clearly the leader (captain) of a football team will need to be a different type of individual than the leader of an organization such as a cultural-literary club. Yet, leaders even in such diverse groups may have some common characteristics that differentiate them from students in general and that result in effective leadership.

A second question is whether collegiate experiences of various types can develop leadership qualities and which types of college experience are most conducive to leadership development. Military officials are convinced that teaching principles of leadership to their men and giving practice in applying these principles will result in effective leaders, at least for those men who have some leadership characteristics to begin with and who are amenable to leadership development. Implied in this concept is another question about whether certain student characteristics will better allow the student to develop in the leadership area with proper training and experiences. Many college officials, especially in the student personnel area, see one of their major roles as promoting the development of leadership.

Students, parents, society, and others are also concerned about leadership development. For example, it is *not* uncommon for prospective employers to consider evidence of leadership ability as being more important than the grades which the student received while in college. Campus leadership experiences are probably more similar to what goes on in many later occupational roles than is true of any other experience as a college student. Furthermore, as Hoyt's review pointed out, research has found negligible relationships between grades and later vocational success.[1] Also there is formal evidence, as well as subjective personal evidence noted by many employers, that college leadership roles are important for leadership success on the job. Roskens found significant relationships for males at a large university between college leadership participation and post-college leadership.[2] Those with high post-college leadership scores were not primarily overall leaders in the college, but they were college leaders in specific areas. In addition participation as leaders in nonacademic organizations was more predictive of post-college leadership than was leadership in academic organizations.

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[1] D. P. Hoyt, *The relationship between college grades and adult achievement: A review of the literature*. ACT Research Report No. 7 (Iowa City, Iowa: The American College Testing Program, 1965).

Success Viewed as Development of Leadership Skills: Selected Annotations

Brewer (1966) studied leadership persistency for selected high school leaders through three years of college. Three hundred high school leaders who entered the University of Arizona were classified after three years into three groups: college leaders (n=73), college nonleaders (n=130), and college dropouts (n=96). Analysis of variance and chi-square procedures were used to compare persisters with nonpersisters on seven academic, biographic, and demographic variables including strength of leadership in high school.

College leaders who had been high school leaders tended to come from larger high schools. Significant differences were found between leaders and dropouts on high school and college grade point average and size of high school and between nonleaders and dropouts on high school and college grade point average. No difference was found to be related to sex. Significantly more leaders were members of fraternities or sororities in college than were nonleaders on dropouts.

Carson and Parker (1966) related leadership to personality for a sample of 356 freshman males at Brigham Young University. Leadership scores were assigned on the basis of an arbitrary weighting of high school and church offices previously held. The students in the top and bottom quarters of the leadership distribution were compared on *Minnesota Multiphasic Personality Inventory* and *California Psychological Inventory* means through the use of *t* tests. Comparisons were also made between the extreme groups and the middle group.

The top group and the middle group were similar on the personality measures studied, but both differed from the bottom group. The nonleaders appeared to be more confused, depressed, evasive, anxious, and less self-assured than students in either the top or middle group.

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[2] R. W. Roskens, "Relationship between leadership participation in college and after college," *Personnel and Guidance Journal*, 1960, *39*, 110-114.

Gough (1969) obtained a sample of 90 male high school student leaders and 89 female high school leaders nominated by principals in 15 schools for which *California Psychological Inventory* (CPI) scores were available. The CPI scores for these leaders were compared by sex with CPI scores for 1,121 males and 1,290 females at eight other high schools. When *t*-test comparisons ($p < .01$) were made of means for the two groups, it was discovered that male leaders scored higher than did the male controls for 17 of the 18 scales and female leaders scored higher than did the female controls on 11 of the 18 scales. When a 5-variable multiple-regression equation was developed using stepwise regression analysis, the equation (or index) included dominance, self-acceptance, well-being, and achievement via independence weighted positively and good impression weighted negatively.

Next, the equation was tried out on a cross-validation sample of 164 college students. A correlation of .34 was found between the index predictions and scores on a leadership scale developed by Carson (Carson and Parker, 1966). A total of 50% of the CPI Index highs fell in the high category of the leadership scale, 41% of the middle index scores fell in the middle leadership category, and 57.1% of the low index scores fell in the low leadership category. Conceptual analysis of the index showed it to be diagnostic of dominance, self-confidence, and aggressiveness at the one pole and of caution, patience, and submissiveness at the other pole.

Harville (1969) derived predictive formulas for early identification of potential leaders on campus. The sample included 82 leaders and 79 nonleaders at the University of South Carolina. The author made use of data on the *Scholastic Aptitude Test* (SAT) and the *16 Personality Factor Questionnaire*, as well as official records at the University of South Carolina and responses to a short questionnaire developed for the study.

Discriminant function statistical analysis yielded four variables which significantly added to differentiating the two groups. Leaders were more group dependent and controlled than the nonleaders; they scored much higher on SAT-Verbal; and they scored slightly lower on SAT-Mathematics. When the 4-variable prediction formula derived was applied to the combined group of leaders and nonleaders, 71% of the leaders and nonleaders were classified correctly. It was concluded that the formula might hold promise for early identification of potential leaders, but to validate the formula the author felt that it would be absolutely necessary to conduct a longitudinal investigation of leaders identified by the formula. No discriminant analysis cross-validation group was used in this particular study.

Jaffee (1968) reviewed studies that examined leadership-attempting behavior and the conditions under which it may be manipulated. He found that likelihood of leadership attempting depends on a complex array of many situational and perceptual variables and depends to a great extent on there being some relatively stable characteristics of the attempter. The situation can largely be explained, however, in relation to three major variables: the individual's perceptions of his abilities relative to the group, the punishment potential of the group, and the subjective payoff for group or individual success.

Important in the perception category are the following: degree to which the person feels he is correct in a given course of action, the amount of relevant information he possesses, his status within the group, previous experience within a group or with similar groups, and the person's acceptance in the group. Variables mentioned in the punishment category were "status of the other group members" and "group size."

Since leadership attempting depends primarily on the continually changing set of perceptions of an individual toward a group or a situation in which the person is functioning, and since specific considerations were found by the research, it was concluded that leadership attempting should be modifiable. Leadership could be modified by changing the situation or the perceptions of a given student up to the point where reinforcement from within the group becomes necessary to maintain or to increase the desired behavior.

A series of studies at the University of Indiana (**Winborn and Jansen**, 1967, 1969; **Jansen and Winborn**, 1968; **Jansen, Winborn, and Martinson**, 1968) compared social-political action leaders to four other categories of selected group leaders: religious organization leaders, university residence hall leaders, activities leaders, and fraternity-sorority leaders. Comparisons were also made between leaders of liberal and conservative social-political action subgroups and between men and women for all five of the original groups. Comparisons were made using *16 Personality Factor Questionnaire* scores (16PF), demographic and self-perception variables, and scores on the *College and University Environment Scales* (CUES). Comparison methodologies included analysis of variance, chi-square tests of association, and *t*-tests.

Significant differences among the five categories of leadership occurred on 10 of the 16PF scales, on four of the five CUES scales, and on almost all of the demographic and self-perception variables that were examined. Differences between liberal and conservative social action leaders were observed for six of the 16PF scales, three of the five CUES scales, and on about half of the self-description variables. (One study looked at some additional variables, but only for the five groupings). Significant differences between men and women were found for four of the five CUES scales, five of the 16PF scales, and on several of the background variables.

Kumar (1965) studied values (as measured by the Allport-Vernon *Study of Values*) in student leadership by comparing a group of 50 male student leaders with a group of 50 male nonleaders. All subjects were students at Allahabad University in India, and the leaders had all held elective student offices. The nonleader group was drawn at random from the general student population of the university, and the two groups were matched on "amount of education." Over half of the students in each group were graduate students.

Comparisons between the leaders and nonleaders were made using *t*-tests. It was found that leaders tended to score lower on the theoretical and religious scales and higher on the social and economic scales. No significant trend emerged for the other value dimensions.

In an earlier study using 16 male business students divided into four teams, **Palmer** (1962a) had found that task ability (performance on a course test) accounted for 88% of the variance in effective leadership. (It was also found that it was more certain that low-ability persons would follow than that high-ability persons would lead.) Therefore, a follow-up study was conducted (*Palmer*, 1962b) in order to do the following: present further evidence about the relationship between ability and effective leadership, to compare the relationship of task-ability versus *successful* leadership with task-ability versus effective leadership, and to test the hypotheses suggested by results of the previous study using different subjects.

Task ability (performance on psychology course tests) was related to successful and effective leadership for a sample of 46 undergraduate students at Louisiana State University. The students first took the test individually, then divided into 4- and 5-person groups and arrived at consensus answers, and finally took the test again individually. Objective measures of task ability, successful leadership, and effective leadership were derived from sets of item responses.

Results indicated that task ability made significant contributions both to successful leadership, accounting for 44% of the variance, and to effective leadership, accounting for 69% of the variance. Thus, task ability contributed significantly more (25% more) to effective leadership than to successful leadership as was expected. Followership was, as predicted, substantially better accounted for by low ability than leadership was by high ability; this was true of both kinds of leadership, but was more pronounced in successful leadership.

Reed (1967) wished to explore the hypothesis that different types of leaders are found in different leadership positions. Therefore, comparisons on *American College Test* (ACT) scores, high school rank, college grade point averages, *Vocational Preference Inventory* (VPI) scores, and *California Psychological Inventory* (CPI) scores were made between student government leaders and residence hall leaders at the University of Maryland. There were 52 student government leaders and 306 residence hall leaders, but some of the students had data missing for each variable.

When *t* tests of the group mean differences were conducted, it was discovered that the student government leaders had significantly higher ACT Composite scores but did not have better grades in high school and college than did the residence hall leaders. The VPI comparisons suggested that the student government leaders were less realistic, less intellectual, and more artistic than were the residence hall leaders. CPI comparisons indicated that the student government leaders were more dominant, had greater capacity for status, had a higher degree of sociability, possessed a higher degree of social presence, and possessed a higher degree of self-acceptance than did the residence hall leaders.

It was concluded that different types of leaders are found in different leadership positions. This may imply that students who are identified most closely as one "type" of leader would be happiest in that area of leadership. However, the data could also be interpreted to imply that the leadership position changes the person. If such is true, a student might prefer to seek a position of leadership which has the possibility of developing desired personal characteristics different from his own rather than a position where experience leads to traits similar to those he already has.

Rohde (1958) wished to demonstrate the existence of leadership ability and to isolate and study those individuals having a lot of leadership ability. By leadership ability he did *not* mean leading ability (the ability which enables one to become leader of a group by winning the acclaim of group members) or leadership personative ability (the ability to create in his superiors the idea he is a competent leader), but rather he meant the ability to successfully lead a group to its designated goal.

To determine the effect of the executor's task ability on group performance, 24 teams of three men each were formed from a group of 111 white male students at Oregon State College. One member of each team was specified as the man in charge (executor) of his team's efforts to solve a maze problem utilizing electric plugs, lights, and switches. A pretest situation was used to select only those high and low in task ability as leaders. Follower motivation and executor prestige were systematically varied among the groups. A Pearson product-moment correlation of .29 was found between group success and the task ability of the executor, but this correlation was not statistically significant from zero for the size of sample.

The variance in group success attributable to the leader's executive ability was shown mathematically to equal the correlation between the success scores of two groups similar in all respects except that the followers were different. Therefore, in a second experiment 33 pairs of 3-man groups were formed in which the leader was the only member common to the paired groups. A correlation of only .07 was found between the success scores of the paired groups.

Further mathematical derivation indicated that the total variance in group success attributable to any group member, irrespective of role, was equal to the correlation between the success scores of two groups similar in all respects except possession of only one common member. From the data, 150 such pairings could be made; and the subsequently computed correlation of .13 was once again nonsignificant.

No evidence was found in the experiments to support the claim that any one individual is consistently more determinative of group success than any other individual, irrespective of his role in the group. The possibility was raised that the concept of leadership ability is nothing more than a popular myth arising from errors common to anecdotal evidence.

Success Viewed as Development of Leadership Skills: Published Literature

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Development of a Respect for Others and Their Views

Lack of respect for others has been in the national limelight during the last decade, especially regarding prejudice and ethnocentrism in the area of race and ethnic relations. Educating for a respect of others and their views has obtained a high priority status at all levels of education. The riots and other problems of the sixties made it clear that prompt action was called for. Equal opportunity legislation and its implementation have been major factors in forcing outward compliance and in bringing antagonistic groups into contact with one another. However, most authorities see education as the only real hope for developing underlying attitudes and respect for others and their views.

A prejudice means that there is unrealistic support for an opinion or attitude. It is any opinion, attitude, or feeling about a person or thing which is not based on experience, knowledge, thought, and reason, or else is based on experience, knowledge, thought, or reason that is definitely and obviously inadequate. One further clarification is that a prejudice, unlike a simple misconception (ordinary prejudgment), actually resists any and all evidence that tries to unseat it. Evidence to the contrary becomes threatening and causes a person to become defensive. The person will distort and see things that really are not there so that the prejudice may be maintained. Also, one prejudice can lead to other prejudices.

According to Allport (1964), the terrible race riots in several large United States cities during the year 1943 caused psychologists to concentrate their study mainly upon personality as a factor in ethnic prejudice. More and more, however, the trend has been to view the family, the social community and group action, economic factors, political factors, geographic factors, and cultural factors as primary determinants of prejudice.

Allport agreed that social forces are important, but he stated that a focus on personality factors is just as important. He contended that only through the study of individual personalities can we come to understand the complex pathways that lead from abstract social forces to concrete personal acts. . . ."No man would say anything at all, nor do anything at all, unless he harbored within himself—in his own personality—the appropriate habits, or expectations, or mental sense, or attitudes—call them what you will [1968, p. 191]."

One proposition about which there seems to be universal agreement among authorities in the field is that prejudice is learned, not instinctive; no child is born prejudiced. Youngsters have to be taught to hate. Before they have been taught such distinctions, it has not occurred to children to distinguish black from white or children of one religion from those of another. But they observe the words, actions, and reactions of others. It is not long before they are indoctrinated by parents, peers, teachers, television, magazines, etc.

Consider an example reported by Reed (1960).

A little girl (let us call her Jane) has been taught by her parents that children whose names end in "ski" should be avoided because they are "not nice." Jane supposes it has something to do with being dirty because she knows that to be dirty is "not nice." Jane is to start kindergarten, and her first day is rather frightening. It is saved for her, however, by a lovely little girl named Marie who smiles and whom Jane finds a lot of fun to play with at recess. Marie even gives Jane half of her sandwich at lunchtime; and because of Marie, Jane forgets all about her fears. Jane is very happy with this new friend until she learns that Marie's last name ends in "ski." Then she discovers that Marie is rather dirty, and she does not like Marie any more.

Important to the prejudice-developmental process may be the seeming tendency for people to want to consider what they hear as facts. Even college students sometimes take what an author says in a book as fact without even knowing the author or the reasons for his assertion.

Another important factor in the child's development of prejudice, which was evident in the example cited, is said to be overgeneralization. There is a tendency even for adults to overgeneralize or overcategorize. Thus, when adults say something, children may associate it with a similar sounding word or may in some other way get the wrong picture.

A prejudice can also be developed through contact with a bias object or objects of the prejudice. The action of one individual or a small group of individuals may cause someone to judge all individuals in that classification as "bad." Thus, he might say that a black person cannot be trusted because he saw such a person steal in the store.

It is easy for a person to judge another quickly and strictly on first impressions or on the first information heard about that person. Thus, there was a man who had a strong dislike for the Democratic party because he felt that it was trying to lead the country to socialism. He considered it a threat to his goal which was to gain wealth. When a new neighbor moved in next door, it was discovered in the first conversation that the neighbor was a Democrat. Because of this discovery, the original man had a mild but immediate dislike for the neighbor, and it grew with time "for no apparent reason at all." If the neighbor had said something at first to classify him with other strong positive goals and rewards of the original man, then a positive attitude instead of a negative attitude may have developed. There are many other hypothesized reasons for prejudice to occur in a person, but the important consideration here is that prejudice seems to be formed in various ways and for various reasons. From this conclusion it might be hypothesized that a variety of methods should be used if a college wishes to reduce prejudice in all its students. For example, students using prejudice as a means of expressing aggression would probably not respond to the same college-sponsored remedial measures as would students who use prejudice to meet status and security needs or who are prejudiced in a certain way simply because their peers are.

A major purpose of the research in this area would certainly be to discover the predominant prejudices present and the causes and backgrounds of prejudice development in various groups of students on campus, and for various types of colleges. Such research would help the college to better understand its student body. Also necessary are studies to discover whether college experiences are reducing prejudice on campus. Just as important, however, would be to explore which, if any, measures are most effective in reducing different prejudices for different groups of college students.

The emphases in this discussion have been on prejudice. The college's goal, however, is to also develop a respect for the views and rights of others for cases where prejudice is not involved. From this viewpoint, even if someone's views are obviously in error and foolish, disrespect for and ridicule of that person are not justified. A basic tenet of democracy is that each individual and idea have a right to be heard, and each idea ought to be given a fair examination. On the other hand, it is opposed to blind acceptance of an idea for the sake of social conformity. But just because you reject an idea after examining it does not mean that you have the right to hold a proponent of the idea up to disrespect and ridicule.

Success Viewed as Development of a Respect for Others and Their Views: Selected Annotations

Kinnick and Plottor (1967) studied change in attitudes toward "Negroes" and "integration" for 46 subjects enrolled in a federally sponsored graduate training institute directed toward the problem. Change in this group was compared with such change in a control group of 29 student members of a regular graduate seminar in education at the University of Auburn using *t* tests. It was discovered that modification of racial attitudes and an increasingly favorable acceptance of school desegregation were achieved in the course when respected sources broke the former unanimity against school desegregation and the Negro stereotype. Therefore, **Caffrey, Anderson, and Garrison** (1969) wondered whether exposure to the undergraduate life at a Southern university would have any effect on the liberalization of racial attitudes. In addition to exploring this hypothesis, they explored whether there was any influence of a student's sex upon racial attitudes.

A group of 60 students were selected at random from the freshman and senior population at an almost entirely segregated (ratio of 1 to 100) white Southern university and divided into four equally sized groups (only 15 students per group): freshman males, freshman females, senior males, and senior females. The only condition for selection was that the student be a resident of the state in which the university was located. All subjects were administered a 10-item Likert-type Negro Attitude Test, where each item was scored on a 5-point continuum from strongly disagree to strongly agree. These scores were analyzed in a 2 x 2 x 2 factorial design "to determine the influence" of school class, student sex, and educational background of parents upon racial attitudes.

The *F* value for parental education was not significant. However, the college seniors were significantly less prejudiced than were freshmen ($p < .01$). Some interaction ($p < .08$) was found with students' sex and class level. Male freshmen had the highest prejudice mean, followed by female freshmen, female seniors, and male seniors, in that order. The college experience would appear to have had an effect on prejudice, although no noncollege control group was involved in the study for comparison purposes.

Dodd and Strang (1966) compared 25 "high prejudiced" and 72 "low prejudiced" freshman elementary education women students at the New York State University College at Buffalo on selected biographical information and personality traits as measured by the *Minnesota Multiphasic Personality Inventory* (MMPI). The biographical information (religious feelings, family background, feelings of security, adjustment to the college environment, and rural or urban residence) was gathered through use of a 6-item multiple-choice questionnaire. A special MMPI prejudice scale developed by Gough was used to classify students as being highly prejudiced, prejudiced an average amount, and not prejudiced.

Results from chi-square analysis supported the idea that there is a linkage between prejudicial attitudes and social adjustment problems. High-prejudiced women tended to have more feelings of insecurity and had demonstrated only fair-to-poor nonacademic adjustment. Another finding was that a larger percentage of the high-prejudiced women came from rural and semi-rural backgrounds than was true for the low-prejudiced women.

Garrison (1961) explored the relationship of background factors to world-minded attitudes in college students, with "worldmindedness" defined as a value orientation favoring a world view of the problems of humanity with mankind rather than the nation as the primary reference group. Sampson and Smith's *Worldminded Attitude Scale* was administered to 301 students in introduction to education, educational psychology, and adolescent psychology courses at the University of Georgia.

A progressive increase in the worldmindedness attitude score means from freshmen to seniors was found, and the scores for women tended to be slightly higher than the scores for men. Students from the South or Southeast had lower means than did students from outside the South, while Baptists and those with related denominational backgrounds had lower means than those with other religious backgrounds. "Occupation of father" seemed to be clearly related to worldmindedness attitudes, with those from a farm environment having the lowest means and those with fathers in professional occupations the highest means. There was a positive relationship noted between worldmindedness and grades in educational psychology, with students earning just average grades being rather anti-worldminded.

Hofstaetter (1952) wished to test the two dominant views concerning prejudice that were prevalent at that time: (*a*) the role a given minority plays in a given society gives rise to certain prejudices which reflect the locally prevailing tensions and (*b*) the existence of a given minority provides personalities of a given type—i.e., the authoritarian personality—an opportunity to channel their inner tensions in certain prejudices. It was his feeling that both of these positions contributed to an understanding of prejudice and that each of them taken separately might distort the picture.

To shed light on the problem, a questionnaire was developed which contained three kinds of statements to which the subjects in the study were to respond: (*a*) anti-Semitic, (*b*) anti-Negro, and (*c*) political-economic propositions. Then students in the author's course in social psychology administered the questionnaire to 187 subjects of their own choosing. The responses to the questionnaire were intercorrelated using tetrachoric correlations, and then factor analysis was conducted. Five largely independent factors were found: I. Anti-Negroism, II. Anti-Semitism, III. National Pride, IV. Puritanism, and V. State-Socialism. No justification could be seen for combining these independent dimensions of variability into one type, e.g., the authoritarian personality.

Karlins, Coffman, and Walters (1969) repeated a study that had been carried out 16 years earlier (Gilbert, 1951) and originally 35 years earlier (Katz and Brayly, 1933) on stereotyping in Princeton University students. Using 150 white freshman and sophomore men enrolled in introductory psychology courses, 90 who had graduated from public high schools and 60 who had graduated from private high schools, an attempt was made to examine the following: (*a*) the differences between the social stereotypes of public high school graduates and the stereotypes of "prep" school graduates; (*b*) the relationship between uniformity and favorableness of stereotypes; and (*c*) changes since the earlier studies in stereotype content, uniformity, and favorableness.

Each student was asked to select from a list of 84 adjectives those which seemed to him to be typical of each of ten racial-ethnic groups. After the students went over the resulting ten lists of words and marked the five words in each list most typical of the group, they were asked to rate the degree of favorableness or unfavorableness they associated with each adjective.

Analyses were conducted using Wilcoxon matched-pairs signed-ranked *t* tests, chi-square tests, and rank-order correlations. It was discovered that stereotype uniformity had increased over Gilbert's findings for every group except Negroes, and it seemed similar in this respect to the findings of Katz and Brayly. The reservations expressed by the students when asked to stereotype, however, suggested that students had become more "sophisticated" and "objective" about making generalizations about other groups.

"Uniformity" and "favorableness" scores correlated significantly across the three generations of students. Although the collections of traits selected to characterize specific groups remained much the same from generation to generation, the relative popularities of these traits changed extensively with the recent students being much more liberal in their attitudes. The traits for a group were never rated all positive or all negative; and interestingly, the students assigned more favorable traits to the Japanese, Germans, Jews, and English than to themselves as Americans (compared to a number 1 ranking for "Americans" in the earlier studies). No differences in stereotypes were found between graduates of public and private high schools, whereas the studies of earlier generations had shown an "ethnocentrism gap" between independent and public school graduates.

Lehmann, Sinha, and Hartnett (1966) studied changes in stereotypic beliefs, dogmatism, and value orientation associated with college attendance for a sample of 1,747 Michigan State University students tested as freshmen and then retested four years later whether they were still in attendance or not. The *Inventory of Beliefs* was used to measure stereotypic beliefs, the *Differential Values Inventory* to measure value orientation, the *Rokeach Dogmatism Scale* to measure open-mindedness and authoritarianism, and an experience inventory to measure social and political attitudes and attitudes about the college.

Pearson product-moment correlations and analysis of covariance were used to make comparisons among the group graduating, the group having less than one year of college, the group having one to two years of college, and the group having two to three years of college. All analyses were completed separately for each sex. Regardless of sex and length of college attendance, all students (and former students) became less stereotypic in their beliefs, less dogmatic, and generally more outer-directed in their value orientation. No significant relationship was found between general academic aptitude and either the degree or the direction of these changes. Female students, regardless of time spent at college, underwent a more marked change in these attitudes and values than did males (although no significant difference was noted in stereotypic beliefs and dogmatism between males and females among the three control groups).

Leonard (1964) wondered if a 7- or 8-month foreign cultural contact by American college students can lead to significant change in intercultural understanding, attitudes, and values if an intensive orientation emphasizing such aspects precedes the departure. A total of 85 Adelphi University students who went overseas (over a period of four years) for one summer and one semester of foreign study and travel constituted the sample for the study. Orientation for the students consisted of a semester course which met two hours per week.

Prior to orientation and again after returning from overseas, each student completed the *Lentz C-R Opinionaire*, a validated and widely used instrument that attempts to determine the extent to which the individual conserves old values and strives for new ones. The drop of eight points (more liberal) in mean test scores which occurred in less than a year compared to a 5-point decline in the scores of regular college students between the freshman and senior year. It would appear that if attitude-change goals are built into the program, foreign travel and study can produce a much greater change in a far shorter period of time than can a regular program of campus study. However, it should be noticed that although 52 students decreased an average of 18 points, 26 actually had higher scores (an average of 9.5 points higher). Seven students had no change in score.

Several factors were examined for their relation to attitude change. Older students changed more than did younger students, and all religious groups changed in the liberal direction. No change was found to be related to socioeconomic status. The attitudes of the conservative students tended to change more than those of liberal students. High-I.Q. subjects were more liberal initially and thus changed the least. Countries visited and their relation to initial attitudes and change suggested that personality type is a more reliable predictor of attitude change in an overseas experience than is the nature of the experience itself.

Photiadis (1962) related amount of education completed to a variety of personality variables known to be related functionally to prejudice. The sample consisted of 300 adult men and women members of three Protestant churches in a Midwestern community. A number of scales were completed anonymously immediately after a church service.

Zero-order correlations indicated that all of the variables—orthodoxy, extrinsic belief, anomie, status concern, conservatism, authoritarianism, withdrawal tendencies and anti-social tendencies—were negatively related to number of years of education completed. However, when partial-correlation analysis was used to determine the relationship of education to each variable when the remaining variables were controlled, only orthodoxy, status concern, and withdrawal tendencies were still related to years of education completed.

Plant (1964) compared observed changes in dogmatism, ethnocentrism, and authoritariansim over a 2-year period for a group of highly promising invitees who participated in a special 2-year humanities program (n=119) and an equally promising group of invitees who declined to participate in the program (n=48). Pre- and post-test measures were obtained for both groups on the following three scales: *Rokeach Dogmatism Scale, Adorno Ethnocentrism Scale,* and *Gough Authoritarianism Scale.*

When correlated *t* tests were used between the pre- and post-test means, it was found that both groups had significantly decreased scores for all three measures. However, without exception the net mean change was greater for the students enrolled in the special Humanities Program. The findings suggested that such a program can have a significant impact in reducing the prejudices of college students.

In an early study, **Plant** (1958) used *t* tests to compare ethnocentrism scores for men as compared with women, and for students in fraternities-sororities as compared with students in other college residence environments at San Jose State College. It was found that women students (n=273) had less ethnocentrism than did men (n=232) at both college entrance and after two years of college attendance with both groups enhibiting less ethnocentrism after the two years. Concerning fraternity-sorority membership, no significant differences were found between members and nonmembers at either point in time.

Plant also computed zero-order correlations between ethnocentrism scores and intelligence test scores (scores on the *American Council on Education Psychological Examination*). There was a significant correlation found for women, although it was quite small (r=-.12), and a nonsignificant correlation for men (r=-.04). It was concluded that change in ethnocentrism associated with two years of college experience did not seem to be greater or lesser for students of varying intelligence.

The sorority-fraternity part of the study was repeated several years later (Plant, 1966), this time using only women. Once again *no* significant differences were found between sorority and nonsorority women. The same was true of comparisons on dogmatism and authoritarianism.

Success Viewed as Development of a Respect for Others and Their Views: Published Literature

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Participation and/or Recognition in Extracurricular Activities

Extracurricular means "outside the curriculum," and all student activities outside of the curriculum have traditionally been classified in this way. In the decade of the sixties, there was a move within the student personnel profession to focus on student activities as important learning experiences constituting a co-curriculum, but the traditional concept still predominates. However, curriculum has been rapidly expanding into such out-of-class areas as independent study programs, work-study programs that take place both on and off of the campus, living-learning programs, travel and study in foreign countries, the 4-1-4 or 4-4-1 calendar, and the "free university." Such changes offer promise that student out-of-class activities, once considered extracurricular, or at the most co-curricular, will someday be commonly considered an integral part of the college curriculum.

For some students, the major reason they are in college is to achieve in the extracurricular area. Thus, one student wishes to play intercollegiate athletics, a second wishes to excel in drama, a third wishes to participate in student government, etc. What they have in common is that getting a degree is secondary in importance to extracurricular participation and achievement. For such students, development in the extracurricular area is the primary criterion of their college success. Others may or may not concur about the validity of such a goal.

Extracurricular participation and/or achievement is merely one aspect or one type of college success for most students. Although this may represent a secondary source of success for many of these students, this does *not* mean that this achievement is less relevant or less important to them.

Although extreme emphasis by students on the extracurricular would be considered unfortunate by most college educators, many of them would judge the college unsuccessful in one respect if it did not support a healthy participation in some extracurricular activities. There are important perceived benefits emerging from this type of participation. Many of these purported benefits have been promoted by leaders in the student personnel field (Lloyd-Jones & Smith, 1954; Mueller, 1961; Stroup, 1964; Williamson, 1961). Their contentions regarding extracurricular participation is that this experience:

- aids in learning about interpersonal relations and how to relate oneself to, and get along with, others
- gives confidence in social skills, relationships, and dealing with others
- gives practical experience in cooperation, teamwork, and being an effective member of a group
- provides opportunity to grow in leadership skills

- gives opportunities for planning, managing, administering, and decision-making
- gives experiences in learning-by-doing in such areas as citizenship, work, family, etc.
- promotes creativity and originality
- promotes self-initiative, independence, responsibility, and self-discipline
- learns to accept defeats, to rebound from such defeats, and to *not* gloat in victories
- provides constructive energy and recreational outlets
- develops profitable habits, interests, and activities for retirement
- complements the classroom by allowing practical application of classroom concepts, theories, and principles to real-life situations
- provides opportunity for coming into contact with up-to-date and new knowledge that is not a part of the curriculum
- provides opportunities for seeing the relationships among the specialized areas of the academic curriculum, i.e., viewing them in the context of the whole
- promotes rational inquiry concerning the world around us
- helps develop a unique sense of being, i.e., of individuality
- develops a feel for and an appreciation of the "art of living"
- develops purposes, values, and a philosophy of life

Whether such claims are valid has *not* been empirically substantiated. However, these beliefs are held by many people who cite the subjective experience reported by students as supporting their contentions. And to many of the college officials such growth is just as important to "college success" as is "academic learning" and getting good grades.

Success Viewed as Participation and/or Recognition in Extracurricular Activities: Selected Annotations

Bach (1961) studied factors related to student participation in campus social organizations. A sample of 272 sophomores in a large Midwestern university completed the *Chapin Social Participation Scale* (a scale measuring extracurricular participation), the *Washburne Social Adjustment Inventory*, and a background data sheet. Differences between groups of students falling into various extracurricular social participation categories were analyzed using *F*-ratio tests, critical-ratio tests, and chi-square tests. Separate analyses were conducted for men and women.

It was discovered that sex, age, marital status, military status, and number of hours worked per week (for both men and women) were significantly related to social participation, while social class was not significantly related. Men in agriculture and women in home economics had the highest social participation scores, as did fraternity and sorority residents. Although informal leisure activities generally did not differentiate the participants from the nonparticipants, men and women participants engaged in "bull" sessions more often than did nonparticipants, and women participants dated more than did women nonparticipants. Conversely, men participants attended movies, plays, and concerts and were active in sports less frequently than did men nonparticipants. Another factor related to social participation for men only was travel time and mode of travel for getting to the campus. No significant relationship was found for either sex between social adjustment and social participation.

Baird (1969b) wondered why some students who have outstanding extracurricular achievement records in high school become ordinary students in college, while other students with similar high school GPA and extracurricular records continue their extracurricular achievement at the same or higher levels in college. A total of 12,432 students were considered as high school "achievers" or "nonachievers" on the basis of their grades and scores on scales of high school extracurricular achievements in leadership, art, science, music, writing, and speech and drama. At the end of the sophomore year, 5,129 of the students (2,295 men and 2,834 women) or 43% completed college extracurricular achievement scales for the same six areas. Pretest comparisons of students with and without follow-up data indicated that only a small amount of bias was present.

Predictors for the study included scores on the *Vocational Preference Inventory*, the *Student Orientation Survey*, the *Preconscious Activity Scale*, the *Interpersonal Competency Scale*, the *Dogmatism Scale*, the *Indecision Scale*, an intellectual resources in the home scale, a range of experience scale, potential achievement scales, competency scales, life goals scales, and self-rating scales. Separate analyses for high school achievers and nonachievers in each area were conducted with biserial correlations relating the predictor variables to the two categories of college achievement in that area (student achievers in the area and student nonachievers in the area).

Few of the students (high school achievers and nonachievers) achieved in college. However, those high school nonachievers and achievers who did begin or continue to achieve in college were distinguishable from the other students by their life goals; a broad range of relevant experiences and skills; and a self-concept which implied interest, capacity, and persistence in the area.

Donovan and Olsen (1965) attempted to ascertain personality characteristics that would distinguish freshman women who would apply for appointive positions in a student activities program from freshman women who would *not* apply for such positions. A group of 48 unmarried freshmen living in a college dormitory who had *not* applied for positions in the activity program at Washington State University were paired and matched on grade point average and curricular major with a group of 48 dormitory women who had applied for such a position and who had also listed as their first preference an activity-type committee which was either recreational or intellectual-cultural as opposed to administrative-advisory. *The California Psychological Inventory* (CPI) was the personality instrument utilized in the study, and *t*-test comparisons between the two groups were made for means on each CPI scale and also for *Scholastic Aptitude Test* (SAT) means.

Significant differences between the groups were found on the following five CPI scales: Self-Acceptance, Sociability, Social Presence, Dominance, and Capacity for Status. No SAT mean differences were found, and it was also noted that the mean number of credit hours carried the first semester was 15.5 for both groups.

Holland and Nichols (1964) used a variety of scales to predict academic and extracurricular achievement in college for a sample of 1,000 National Merit finalists. Interests, goals, activities, self-concepts, aptitudes, and personality traits were measured. In addition to high school rank and *Scholastic Aptitude Test* scores, predictor scores were available for the *Vocational Preference Inventory* and the following scales: the *Indecision Scale,* a range of experiences scale, an intellectual resources in the home scale, a range of competencies scale, the *Deferred Gratification Scale*, the *Super-Ego Scale*, the *Independence of Judgment Scale*, an aspirations and goals scale, high school achievement scales, and self-rating scales. Criteria of achievement included grades and checklists of accomplishments in art, science, leadership, music, dramatic arts, and writing.

Intercorrelations were calculated and then multiple-regression equations were developed by selecting the most efficient ($p < .01$) predictors from the 130 variables available. These procedures resulted in three to five variable multiple-regression equations for each criterion and each sex. Cross-validation of results using 437 other students revealed that records of past achievement and the *Potential Achievement Scales* developed from everyday activities and interests were generally superior to other kinds of variables as predictors of achievement in college. Expressed goals were next in predictive efficiency, followed by a variety of measures of lesser usefulness. *Scholastic Aptitude Test* scores failed to enter any of the prediction equations at this high level of aptitude.

Locke (1963) related intellectual abilities, personality traits, personal habits, and demographic variables to classroom and out-of-class achievements for 122 high school juniors and seniors attending a Cornell University summer school advanced science training program. All of the subjects were highly selected in terms of both aptitude and motivation. A total of 47 variables were intercorrelated and the correlations subjected to factor analysis. Factor scores for the 11 factors which resulted were then correlated separately by sex with scores on a classroom achievement factor and an out-of-class achievement factor which had been derived in an earlier study.

While "vocabulary" and "self-control" were found to be the most highly related to classroom achievement, along with "creative energy," which had a negative correlation for females and a positive correlation for males, "school and city size" and "originality" related most highly to out-of-class achievement. Those were the only two statistically significant correlations with out-of-class achievement for males. The females also had significant correlations for "independence versus socio-economic status," "research opportunities," and "vocabulary."

Mackenzie (1967) administered the *Extracurricular Achievement Record* (EAR), developed by Holland and Nichols (1964), to 104 first-year dentistry students at the University of Pittsburgh and attempted to use scores on that instrument to predict extracurricular activities in dental school. The three criterion measures of dental school extracurricular activities were (*a*) student candidacy in class elections, (*b*) student participation in giving table clinics at the Student American Dental Association Day, and (*c*) student application for summer research fellowships.

Each of the three criterion measures divided the students into two groups, participants and nonparticipants. Chi-square analysis revealed that scoring high on the EAR Leadership Scale predicted participation in dental school leadership activities, that scoring high on the EAR Scientific Scale predicted a tendency to seek the summer research positions, and that scoring high on all of the EAR scales predicted participation in the dental school professional activities. The results thus supported the predictive validity of the EAR in that students who had participated in leadership, scientific, or general extracurricular activities in high school tended to continue similar activities in dental school. They also scored higher on the EAR.

Richards, Holland, and Lutz (1966a, 1966b, 1967a, 1967b, 1968) explored the predictive usefulness of twelve scales designed to measure notable extracurricular accomplishments in college, six scales measuring high school extracurricular accomplishments, and one academic accomplishment scale. Each of the extracurricular accomplishment scales focused on a particular area of activity, e.g., social, religious, music, etc.

A large sample of students who had a broad range of talent and who attended a variety of colleges completed the questionnaires. The correlations and multiple correlations computed indicated that the high school scales can predict extracurricular accomplishment in college with moderate reliability. Students participating in particular extracurricular activities in high school tended to also participate in those activities in college. Besides demonstrating that the high school activity scales had useful predictive validity, the results supported earlier findings which had suggested that nonacademic accomplishment is largely independent of academic potential and achievement. An additional finding was noted when the college achievement scales were administered to freshmen, sophomores, and seniors. In general, seniors had more extracurricular accomplishments of each kind than did sophomores; and sophomores had more extracurricular accomplishments of each kind than did freshmen.

Schendel (1965) studied personality differences between athletes and nonparticipants in athletics at three educational levels using the *California Psychological Inventory* (CPI). The comparisons were made for males only and involved 105 upperclass students at the University of Oregon (45 athletes and 60 athletic nonparticipants), plus 109 boys in 12th grade and 120 boys in 9th grade in the Eugene and Springfield, Oregon, public schools. To explore differences in means at each level, *t*-tests were used. In addition, CPI profile charts were prepared so that the mean pattern for one group could be compared with the mean pattern for the other group at each grade level.

From the findings, it was concluded that the college *nonparticipants* in athletics generally possessed desirable personal-social psychological characteristics to a greater extent than did the athletes. This was just the reverse of findings at the lower grade levels where the athletes exhibited more desirable characteristics than did the nonparticipants. Significant mean differences were found on 9 of the 18 scales for college athletes with nonparticipants having significantly higher means on 8 of the 18 scales, and athletes having a significantly higher mean on one scale. . .

At the 9th and 12th grade levels, significant differences (on 8 scales for Grade 9 and 4 scales for Grade 12) involved scales on which the athletes had the higher means, with the exception of 2 scales at the 12th grade level.

The nonparticipants in athletics in college, when compared with the college athletes, possessed more of the qualities which lead to status, were more conscientious and responsible, possessed greater tolerance, were more capable of independent judgment, had greater intellectual efficiency (intelligence was not controlled in this study), were more interested in the psychological needs of other people, were more adaptable in their thinking and social behavior, and had more feminine interests. The college athletes were more conventional in responding to social situations. Few differences in psychological characteristics existed between college athletes rated as substitutes, regular players, or outstanding athletes, although the substitutes were more like the nonparticipants in some respects.

For three classes of students who had entered as freshmen and graduated from Barnard College (N=633), **Schmeidler, Nelson,** and **Bristol** (1959) made within-group and between-group comparisons for the following three categories of students: (*a*) students who received academic or extracurricular honors; (*b*) students who withdrew, were on probation, engaged in extremely few extracurricular activities, or had severe psychological difficulties; and (*c*) students rated as potentially creative. The groups were formed on the basis of data from student records at graduation plus ratings from the college pyschiatrist. The comparisons were based on *Scholastic Aptitude Test* (SAT) quartiles and group *Rorschach* adjustment ratings determined for each student at college entrance.

For subgroups within each of the above groups, cross-tabulation tables of frequencies were prepared which related Rorschach adjustment ratings to SAT quartiles. Using chi-square analysis, each subgroup was then compared with all other students in the sample on SAT quartiles and Rorschach ratings. It was found that not only was there a significant relationship between academic honors and SAT scores but also there was a significant relationship between extracurricular honors and SAT scores. Similarly, it was found that the Rorschach rating of adjustment was significantly related to both academic and extracurricular honors. When the focus was on the second major group, SAT scores were found to be related to withdrawal and probation, as expected, but not to the condition of engaging in very few extracurricular activities nor the condition of having severe psychological difficulty. Rorschach adjustment ratings were significantly related to withdrawal ($p<.01$), had a suggestive relation to probation, and had a highly significant relation to "few extracurricular activities" and to "severe psychological difficulties" ($p<.001$).

Concerning the students rated as potentially creative, it was found that they tended to be more intelligent, to achieve more academic and extracurricular honors, and also to behave differently from the other students.

Based on their athletic participation in high school, 456 men graduating from the U.S. Military Academy were classified into an athlete group (N=340) and an athletic nonparticipant group (N=116) by **Werner and Gotthell** (1966). The Cattel *Sixteen Personality Factor Inventory* (16PF) had been administered shortly after entrance and again shortly before graduation four years later. Since the proportion of athletes who graduated from the Academy was significantly greater than the proportion of athletic nonparticipants graduating, only students graduating were included in the study so that pre- and post-comparisons could be made for the same students.

When *t* tests were conducted on 16PF mean differences between the two groups at college entrance, it was found that the athletes were more sociable, dominant, enthusiastic, adventurous, tough, group dependent, sophisticated, and conservative than were the nonathletes. It was concluded that either athletic participation influences personality structure or else that students with certain personality structures elect to participate in athletics. Since all cadets must participate extensively in athletics during their four years at the academy, a basis was offered for testing the two hypotheses. If more change in personality would occur for the nonathlete group, the first hypothesis would be supported. If no differences in personality change would occur over the four years, the second hypothesis would receive support. Therefore, comparisons were made between the two groups on the amount of personality change and the pattern of personality change from college entrance to college graduation.

When the mean of the absolute sum of all 16PF score changes for athletes was compared with the score-change mean for nonathletes, the difference between the groups was *not* significant. In addition, the direction of change for the two groups was the same for 15 of the 16 scales, with at least one exception being expected by chance alone. Furthermore, examination of the patterns at college entrance and again at graduation, using zero-order correlations of the mean scores on the 16 scales, implied that the nonathletes did not become more like the athletes in personality structure. From this preliminary study, it would seem that the second hypothesis has more support than does the first, at least for the college years. However, it must be remembered that this was a preliminary study with students at a unique collegiate institution.

Success Viewed as Participation and/or Recognition in Extracurricular Activities: Published Literature

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SUCCESS VIEWED AS AESTHETIC-CULTURAL DEVELOPMENT

Aesthetic-cultural development could be thought of in terms of artists developing their sensitivities and skills. This undoubtedly is the goal of art departments for their majors. However, many educators feel that the college should aid development in this area also for the typical student who will not be a professional practitioner in the arts. Some of these educators would only emphasize the development of aesthetic and cultural interests, appreciations, and feelings for the typical student. However, others would say that everyone has a need to develop a certain amount of artistic skills and creativity.

Those who promote aesthetic-cultural development in college assume that the college experience can have a significant effect on the typical student. On the other hand, there are some who feel that such development cannot take place unless the person has needed inborn qualities. Yet proponents of neither of the positions appear to have made serious efforts to empirically verify their contentions. If the college experience can, indeed, bring about development in this area, the question remains as to how much the development is contingent upon interaction between the characteristics of the student and the particular types of experiences that take place in the specific setting. Perhaps one type of student will exhibit more aesthetic-cultural development at one type of college than at other colleges, while other colleges may be more effective for a student with different characteristics than those of the first student.

Development of Aesthetic and Cultural Interests, Appreciations, and Feelings

The development of aesthetic and cultural interests, appreciations, and feelings was important to many of the early Greek philosopher-educators who provided the beginnings of present-day educational philosophy. Ever since the Renaissance of the Middle Ages, such goals have been considered important by various segments of society, and they are a hallmark of liberal arts education. Some proponents of the "great books" and other similar programs would seemingly consider this the *most* important educational goal for colleges and universities.

In spite of the supposed importance of developing cultural appreciations and interests in college, research on the subject has been lacking. Very little published research was found which related development in aesthetic-cultural interests and appreciations to other nonintellective factors. Even more scarce were studies that explored factors related to change in such interests and appreciations which takes place during college. Whether the college experience can have an effect on the amount of change seemed to be purely a matter of conjecture, although subjective reports of students and others have implied that such is the case. Ways in which the college can best nurture and bring about this development for various kinds of students have even less foundation. How the college can increase or maximize such growth is primarily "arm chair" hypothesis and conjecture at this time. Yet, as mentioned previously, various educators consider this function an extremely important part of the college experience.

A number of studies comparing artists to nonartists are reviewed in the following major section of this chapter. Unless aesthetic-cultural interests and appreciations are controlled for, however, significant variables cannot be said to imply a relationship with artistic skills or with artistic creativity. Therefore, such studies could usefully compare successful artists with nonartists who lack artistic skills and creativity but who have strong aesthetic-cultural interests and appreciations. Needed for the present topic, however, are studies that compare nonartists having aesthetic interests and appreciations with nonartists lacking such interests and appreciations.

Success Viewed as Development of Aesthetic and Cultural Interests, Appreciations, and Feelings: Selected Annotations

Birney and Houston (1961) studied the artistic preferences and the effects on individual preferences when subjected to group preferences for 60 Amherst College freshmen selected at random. The subjects were shown 30 paintings, most of them from the romantic or modern periods, one set at a time on an opaque projector and were asked to rate each on a 10-point scale. Then they were administered three tests of creativity (the *Unusual Uses Test*, the *Figure Preference Test*, and the *Creative Mosaic Test*). The Unusual Uses Test had no correlation with the other two, so only the latter two tests were used to split the students into three equal groups according to how creative they were. Three months later eight of the paintings were used again and the subjects were subjected to uniform degrees of disagreement by the majority.

Even though personal esthetic preferences were involved, almost all of the subjects modified their ratings somewhat when a discrepant majority opinion was reported. However, neither norm distance (the size of the discrepancy between the individual's prior judgment and that of the majority) nor instructional differences had any overall effect on the yielding which occurred. The subjects with higher creativity scores yielded less.

Various authors had suggested that the average preference rating of an aesthetically relevant stimulus be taken as a measure of its aesthetic value and that the degree to which a person agrees with the average preference ratings for various stimuli be taken as a measure of his aesthetic sensitivity. Therefore, **Child** (1962) tested this hypothesis by relating average preferences of college students to an external criterion of aesthetic value available in judgments made by art experts and to an independent measure provided by the *Bullay Test of Aesthetic Judgment*.

A group of 22 men at Stanford University and another group of 22 men at Yale University, both selected from introductory psychology courses without regard to their interest or competence in art, formed the sample. In individual sessions, the subjects were asked to react to 12 sets of postcard-size reproductions of paintings with each set composed of 60 pictures. They were to divide them into ten piles of six pictures each according to the appeal of each picture to them. After reacting to all of the sets, each subject was interviewed about the bases for his preferences and about his life history and relation to art. Several objective tests were also administered to each subject: *Barron-Welsh Art Scale*, *Sentence-Preference Test*, *Scholastic Aptitude Test*-Verbal, *Myers-Briggs Type Indicator*, and a tolerance for ambiguity and ambivalence questionnaire.

The average preferences for both groups bore little relationship to the aesthetic value of the paintings. Degree of agreement with the average also indicated little relationship to either criterion. When degree of agreement with aesthetic value was related to the other variables, several tentative conclusions were suggested. Agreement of preference with aesthetic value was in both groups positively related to knowledge about art, the interview-mention of aesthetic value, verbal aptitude, and tolerance for ambiguity and ambivalence. It was negatively related to viscerotonia, temperamental characteristics which center around love of comfort, relaxation, and friendly social relationships. In addition, although the correlations were not significant for either group, aesthetic value reportedly seemed related to intuition rather than to sensation and to perception rather than to judgment.

Frumkin (1960) studied personal factors in college students which are related to their artistic preferences. A total of 135 freshman and sophomore college students enrolled in sociology courses at the State University of New York in

Oswego completed the *Assessment of Painting Preferences* and the *Assessment of Familiarity with Paintings*. Other data for each student included the score obtained on the *Rokeach Dogmatism Scale*, age, social class status, and sex. The students were broken down into high and low groups on each of the predictor variables, and then Painting Preference score means were computed for both groups in each case. One-tailed *t* tests were used to explore differences for each pair of Painting Preference means.

Socio-economic status, sex, age, dogmatism, and familiarity with paintings were all found to be significantly related to painting preferences. It was concluded from this that "what an individual likes or dislikes in paintings is an important guide to the structure and dynamics of his personality" and that "painting preferences are a clue to understanding the intellectual climate in a culture."

Hall and Willerman (1963) formed groups of dormitory roommate pairs with various combinations of academic ability and then studied the effect of roommates on grades, study habits, and other activities, including attendance at the following five cultural events: concerts, plays, university convocations, art exhibits, and special lectures. An analogous study was conducted for roommates who had selected one another.

Two newly opened dormitories at the University of Minnesota were utilized for the study. The students in Dormitory A were all male and were mostly freshmen studying liberal arts, sciences, or engineering. The residents in Dormitory B were also largely freshmen, with male agricultural students in one wing and female home economics students in another wing, and with an administrative office and a large lounge shared by the two wings. All freshmen over 21 or veterans of military service, all foreign students, and all graduate students were left out of the study.

Mutual requests for particular roommates were honored. These were split into the following six groups: freshmen in Dorm A, upperclassmen in Dorm A, male freshmen in Dorm B, male upperclassmen in Dorm B, female freshmen in Dorm B, and female upperclassmen in Dorm B. For the experimental conditions 96 students were matched to 96 other students on high school rank (HSR), and roommates were assigned as follows: (*a*) 24 roommate pairs, both with high HSR; (*b*) 48 roommate pairs, one with high HSR and one with low HSR; (*c*) 24 roommate pairs, both with low HSR. Information for analysis came from a questionnaire administered after two months of attendance, administrative records, interviews, and reports from residence counselors. Chi-square tests comprised the statistical methods used to analyze the cultural activity data.

Concerning the frequencies of attendance at the five types of cultural activities, the majority of students reported no attendance and the frequency distributions were badly skewed. Therefore, comparisons were made in each category between those with no attendance and those attending at least once. Roommates were significantly more alike than expected in attendance at plays among both experimental cases ($p < .05$) and mutually selected cases ($p < .05$). In concerts and art exhibits, roommates for both experimental and mutual cases were more similar than expected, but not significantly so. In convocations and special lectures, the frequencies were about what would be expected with *no* tendency toward similarity for roommates. When total cultural participation was examined, the experimental roommates were *no* more similar than expected; and the same was true of mutually selected roommates. There was some evidence of similarity in frequency of attendance for the categories of mutually selected upperclass roommates; but this was probably a result of mutual selection rather than of influence by roommates because it did not appear among the experimental cases.

Hartley and Schwartz (1966) explored two hypotheses in terms of aesthetic judgment. The first hypothesis was that a person behaves in a manner consistent with his perception of himself. The second hypothesis was that subjects for whom a given value is more important to their personality will behave with more self-consistency than those for whom that value is relatively unimportant. If these hypotheses would be supported, it would suggest that aesthetic preference and appreciation is at least partially a function of a person's personality.

A total of 25 students in undergraduate psychology courses at the City College of New York who had previously been administered the Allport-Vernon-Lindzey *Study of Values* participated in three special sessions spaced a week apart. In the first session the students were exposed to 24 slides of varied paintings (traditional, realistic, impressionistic, modern, abstract) with the exposure for each slide being 45 seconds. For each painting the subjects were asked to write a description of the person who would most like the painting and another of the person who would least like the painting. At the second session each person was given his 24 pairs of attributes and asked to respond for each pair about where he would personally rank on a 10-point scale between the two attributes. For the third session slides of 12 additional paintings were added to the original 24, and the slides were randomly presented to the group for 45 seconds each. The subjects rated on a 6-point scale (ranging from "like very much" to "dislike very much") how much they liked each painting.

Tetrachoric correlations were computed between how much the students liked the paintings and their scores on the degree to which they thought they were charactoristic of persons who like or dislike the paintings. The obtained values ranged from .85 to -.09, with the r_t equivalent of the mean z transmutations of the r's equal to .50 ($p < .01$). Because of the positive relationship between the self-concept scores and the judging behavior, the first hypothesis was supported.

To test the second hypothesis, rank difference correlations were computed between the individual differences in the correlation coefficients obtained (degree of self-consistency) and the variation in scores obtained on the *Study of Values*. The rank difference correlation of .39 was statistically significant ($p < .05$), which meant that the second hypothesis was also supported.

James (1963) hypothesized that the best students would be characterized by greater interest, knowledge, and participation in the cultural life of the university than is true of other students. To test this hypothesis, he administered a questionnaire to three groups of students at a Southwestern state university: (*a*) 117 talented successful students, (*b*) 101 talented unsuccessful students, and (*c*) 82 students selected at random from the student body. Those considered talented ranked in the top 15% on entrance ability tests or the top 10% on high school grades. Success was defined as having a GPA of from 1.0 to 2.0 where 1.0 was high. A 3.0 was required for graduation, and 3.01 - 5.0 was considered unsuccessful.

The questionnaire yielded objective data from which inferences could be made about attitudes, opinions, and preferences, e.g., the use students had made of cultural facilities and the familiarity gained with activities of this type. "Eyeball" examination of the frequencies for each group on the various items indicated that the first group exceeded both of the other groups in their professed participation in cultural activities, and they were able to substantiate these assertions by factual information. Interestingly, the talented unsuccessful group, although less culturally inclined than the successful group, also surpassed the randomly selected group in cultural interests and activity participation. It was concluded that "continuance of a high level of cultural offerings should serve to attract and retain the better students and thus appears to be directly related to maintaining the university as a quality institution scholastically" [p. 213].

Klein and Skager (1967) explored factors which constituted quality in drawings as evaluated by two different groups of experts and by laymen. They also explored whether laymen could be taught to judge quality in terms of the criteria used by the experts.

In an earlier study (**Skager, Schultz, and Klein,** 1966) where ratings of overall preference about 191 drawings by laymen plus experts at three schools of design were factor analyzed, there seemed to be three clusters of judges.

Within each cluster there was close agreement on which drawings were considered "good" or "bad." The clusters were Artists-I (mainly experts from a school of design in New England), Artists-II (mainly experts from two schools in the New York City area), and Laymen whose level of education was comparable to that of the experts but in fields other than art. Artists-I experts appeared to prefer deliberate styles of drawing, while Artists-II experts appeared to prefer spontaneous styles.

For the later study **Klein and Skager** (1967) selected from the pool of original drawings the 20 with the highest positive loadings on Artists-I and the 20 with the highest negative loadings on this viewpoint. Then the 20 drawings with the highest positive loadings and the 20 drawings with the highest negative loadings on Artists-II were selected. These 80 drawings were randomly mixed and given, along with definitions for "spontaneous" and "deliberate," to ten laymen. The laymen were asked to find two clearly "spontaneous" drawings and two clearly "deliberate" drawings. They were then supposed to use those four paintings as standards and classify the remaining 76 drawings into a "spontaneous" and a "deliberate" pile. The subjects worked independently and were unaware of the procedures used to select the 80 drawings.

A 3-dimensional contingency table (10 judges x 2 viewpoints x high and low quality) was constructed with each cell containing the number of drawings classified as "spontaneous." The total chi-square for the table was then partitioned. Since a statistically significant interaction between quality and viewpoints was found, separate chi-square values for each viewpoint were computed. In addition, profiles were made of the average number of drawings judged "spontaneous" for the two levels of quality in each viewpoint.

The results indicated that the Artists-I viewpoint was highly sensitive to the difference between "spontaneous" and "deliberate" but that the Artists-II viewpoint was not. Artists-II judges, therefore, appeared to be basing their evaluations on a dimension unrelated to the "spontaneity versus deliberateness" dimension.

The fact that the laymen judges did an excellent job of identifying high- and low-quality drawings on the Artist-I viewpoint supports the potential efficacy of art appreciation courses in instilling a knowledge about drawing quality. The laymen easily adopted an orientation that permitted them to replicate the aesthetic judgments of highly trained experts. On the other hand, this was a simplistic viewpoint of quality; whether or not they could be taught to recognize quality from other viewpoints remains to be seen. Furthermore, "recognizing quality" says nothing about whether and how an art appreciation course affects art appreciation in its students.

Knapp (1962) in a unique study related aesthetic choice to attitudes toward time. A questionnaire containing items dealing with the management of time and attitudes toward time was administered to 77 male undergraduates. Factor analysis revealed two significant factors: (*a*) a "time-servant versus time-master" factor in which attitudes of emotional concern and harassment over time were bipolar to attitudes and practices suggesting masterful management of time and scheduling and (*b*) a bipolar factor of "time obliviousness versus efficient time management."

Factor scores for the two factors were correlated with the preference ranking assigned each of the 30 tartans of the *Knapp Tartan Test*. The test consists of lithographic reproductions of Scottish tartans mounted on 5" x 8" cards selected to include a variety of textures, colors, degrees of contrast, etc. Each subject was to sort them into six groups of five each according to their aesthetic appeal. The "time master-servant" factor was significantly related to aesthetic preference for Scottish tartan designs such that "time-driven" persons preferred somber blue and green designs, while brighter designs of predominantly red and yellow were preferred by individuals with reported ease in the management of time. Results for the second factor were somewhat inconclusive, so they were not reported.

Knapp and Green (1960) had administered a test of aesthetic preference involving 40 slides of modern abstract art to 120 male undergraduates who recorded their preferences on a 7-point scale. Five factors were obtained when the ratings had been intercorrelated and factor analyzed. Preference for each of these five styles (factor scores) was then correlated with *Minnesota Multiphasic Personality Inventory*, *Strong Vocational Interest Blank*, and *Allport-Vernon Study of Values* scores. A number of significant relationships were found which resulted in a conclusion that patterns of aesthetic preferences are related to personality characteristics.

Knapp and Wulff (1963) further explored personality correlates of preferences for abstract and representational art using a sample of 86 male undergraduates. The *Myers-Briggs Type Indicator* and the Allport-Vernon *Study of Values* were used as personality measures. *Scholastic Aptitude Test* scores and *Terman Concept Mastery* scores also served as independent variables. The criterion, aesthetic interest, consisted of ratings of degree of pleasingness toward 36 still-life paintings shown on slides. The paintings were, on the basis of judges' ratings, divided into three groups: "abstract," "intermediate," or "representational."

Analysis of variance was used to compare means on the various independent variables for the three groups. Preference for abstract paintings was found to be positively associated with intuitive dispositions, high scores on aesthetic interest, superior verbal and math abilities, a family background of greater intellectual cultivation, and superior performance at the precollegiate level. Preference for representational paintings represented the opposites of the above and was meaningfully associated with a high religious score and a low aesthetic score.

Windholz (1968) used a 2 x 2 analysis of variance design to find the relationship of creativity and intelligence constellations to 26 traits of temperament, interests, and values. The subjects for the study were 222 undergraduate students enrolled in introductory psychology courses at the University of North Carolina at Charlotte. Six convergent tests constituting the intelligence dimension and six divergent tests constituting the creativity dimension from Guilford's Structure of Intellect were administered to the sample along with the *Guilford-Zimmerman Temperament Survey*, the *Kuder Preference Record*, and the Allport-Vernon-Lindzey *Study of Values*.

Preference for the aesthetic was found to be related to both intelligence and creativity. A high level of creativity was found to be related to higher levels of literary and musical interests and the aesthetic experience of harmony and form, and it was found to be related to lower levels of appreciation of mechanical gadgets and computations and the practical and useful in daily life. A higher level of creativity was also found to be related to greater social participation, interest in helping others, and the valuing of people. A higher level of intelligence was related to higher emotional stability, lack of hypersensitivity, lower preoccupation with the other-worldly and the mystical, and greater preoccupation with the aesthetic experience of harmony and form. Lower levels of intelligence were related to neurotic tendencies, hypersensitivity, and preoccupation with the mystical, but not with preference for the aesthetic. These findings suggested the hypothesis that, contrary to popular opinion, aesthetic preference is not related to emotional instability, hypersensitivity, and mystical preoccupation.

Success Viewed as Development of Aesthetic and Cultural Interests, Appreciations, and Feelings: Published Literature

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Development of Aesthetic Creativity and Artistic Skills

Many knowledgeable people feel that real aesthetic creativity and artistic skills are more a product of heredity than they are of environmental development. Even if this is the case, however, inborn potential cannot be released without nurturance, practice, and application.

While acknowledging that prominent artists and authors must have had extraordinary native ability to achieve such a renowned status, some people emphasize that everyone can develop aesthetic creativity and aesthetic skills to the point where much personal enjoyment and satisfaction can result. Not only can such artistic creativity and skills result in citizens who support the arts but also it is necessary in some nonartistic occupations. Furthermore, this creativity will provide useful and relaxing activity throughout life. Such development throughout life could be especially important to relieve the boredom and feeling of unproductiveness that commonly mark the retirement years.

Many colleges wish to develop artistic creativity and aesthetic skills not only in their arts and humanities majors but also in their other students as well. They wish to be able to identify and to motivate students with a real potential for professional success in this area, but in addition they wish to be able to motivate other students to develop in this area for their own benefit. Finding which methods and approaches will result in desired aesthetic creativity and skills for students with different characteristics would be valuable to these colleges; however, most studies in this section merely look at differences between artists and nonartists. Michael (1964) expressed the research need in this area well when he stated that the assessment of creativity among college students requires a unified theory of the teaching-learning processes, recognition of differences in creative abilities needed and manifested in various curricula and college environments, a development of collaborative experimental programs, and technical advances in evaluative procedures.

A number of the studies referenced for this section were also listed for the creativity section of Chapter 3 because they explored both intellectual and aesthetic creativity. In addition, some of the research findings of Chapter 3 probably also apply to aesthetic creativity. However, although intellectual and artistic creativity are related to each other, they are not the same thing. Many people who are intellectually creative do not have an abundance of artistic creativity and skill. Conversely, skilled and creative artists, authors, and composers are not always intellectually inclined, although they tend to be.

Persons interested in this area would be advised to read the book by Havelka (1968). This book gives some real insights plus much especially stimulating theoretical discussion into the creative process in art.

Success Viewed as Development of Aesthetic Creativity and Artistic Skills: Selected Annotations

Anastasi and Schaefer (1969) searched for biographical correlates of artistic and literary creativity using a sample of 400 female students (primarily juniors and seniors) from seven public high schools in greater New York. Those particular high schools were chosen because they offered courses and programs providing opportunities for creative activities, plus they had outstanding records of awards, prizes, and other indications of student achievement in art or writing. The total sample was comprised of four criterion groups of 100 students each: a creative-art group (CrA); a control group (CoA) matched to the CrA group on school attended, class and GPA; a creative-writing group (CrW), and a control group (CoW) matched to the CrW group on school attended, class, and GPA. Each control group student was enrolled in the same courses in art and writing as the creative student to whom he or she was matched. The two creative groups were selected using teachers' nominations and scores on the *Guilford Alternate Uses and Consequences Tests*. The control group students had all been nominated by teachers as having provided no evidence of creative achievement.

The 166-item biographical inventory used was developed for an earlier study (Schaefer and Anastasi, 1968) for exploring creativity in high school boys. In the earlier study a validity coefficient of .64 had been obtained for a scoring key to predict art-writing achievement. The art and writing fields were chosen for the present study because differentiation between creative and control groups was found to be greater in the combined art and writing group than in the science group they were also studying.

Each of the four groups was subdivided into two subgroups of 50 girls each, one to be employed for development of scoring keys and one for cross-validation of the scoring key for each artistic area. For each scorable item a phi coefficient was computed against the dichotomous criterion of creative versus control, one for art and one for writing. All items with phi coefficients of $p < .20$ or better were considered for inclusion in the initial CrA and CrW scoring keys. A weight of 1 was assigned to items discriminating between the $p < .20$ and $p < .05$ levels, and a weight of 2 to items discriminating at the $p < .05$ level or better. Items with higher frequencies in the creative group received positive weights, while those with higher frequencies in the control group received negative weights.

Cross-validation point-biserial correlations between biographical inventory scores and the dichotomous criterion were .34 for CrA and .55 for CrW. Final keys were constructed with items whose compound probability was derived from both initial and cross-validation samples, resulting in a 40-item CrA key and 82-item CrW key. The most conspicuous characteristic of the creatives in both fields was pervasive and continuing interest in their chosen field and absorption in its pursuit. In addition, it appeared that they had more unusual experiences in their backgrounds than did controls, more unusual types of paternal discipline, more fathers with higher educational training, more cases where a musical instrument was played in the family (suggestive of the cultural level in the home); and more creatives reported having two or more hobby collections.

The CrA and CrW groups were not directly comparable because of differences in school and class distributions and GPAs. Differences between the keys suggested, however, that the CrW group had a stronger intellectual and "cultural" orientation and a greater breadth of interests, both in the students themselves and in their home backgrounds.

Brown (1965) in a 1-semester university education course attempted to develop creative sub-selves and noncreative sub-selves using special instructional procedures. Twenty-four females and one male constituted the experimental group which was subjected to four to six hours of special instruction per week. Two control groups were used, one with 23 girls and one with 15 girls. The subjects in all three groups were junior elementary education majors at the University of California, Santa Barbara.

The creative and noncreative sub-selves were crystallized around two characters in a children's book—a creativity symbol (William Elephant) and a noncreativity symbol (Old Owl)—which could be used to trigger the corresponding sub-self. These symbols and their concepts were continually reinforced in the informal sessions throughout the semester. A pre- and post-test of the *Barron-Welsh Art Scale* were given to the experimental group using normal instructions. One day after the post-test they retook the scale after being instructed to let the part of them that was William Elephant take the test with the rest of them shut off—"triggered creativity." Another day later they took the scale again with their Old Owl sub-self responding—"triggered noncreativity." One control group took the pretest and the post-test also. After the post-test, the story of William Elephant and Old Owl was read and discussed with them, and they took the scale again as William Elephant (but not again as Old Owl). The *Barron Complexity Scale* was given as a post-test (no pretest) and under triggered creativity instruction to the experimental group and the second control group.

Covariance analyses and *t* tests revealed experimental group score difference on the *Barron-Welsh Art Scale* between pretest and post-test ($p < .001$) with even greater differences between scores on the post-test and the triggered conditions. The significant difference between post-test and triggered condition was noted for *Barron Complexity Scale* scores also. The creative sub-self scores indicated a preference for simplicity. Gain differences between the experimental and control groups were significant at the .05 level, with the experimental group showing the more change under triggered conditions.

Chambers (1969) reviewed the research literature on creativity and the theoretical contributions by Freud, Jung, Adler, Rank, the neo-Freudians, interpersonal theorists, trait theorists and association theorists. Based on this review he defined creativity as "a multidimensional process of interaction between the organism and its environment which results in the emergence of new and unique products, the three main dimensions of creativity being level, field, and type" [p. 779]. Within this definition, 12 hypotheses were advanced to account for the what, why, and how of creativity:

1. The basic motivation for creative behavior resides in neural and muscular tissue and is originally elicited by novelty of the environment.

2. There are multiple bases for the development of strong motivation for high level of creativity in adults, arising from factors such as the drive for mastery, basic insecurities, curiosity, rivalry, etc.

3. Mental health has little effect on creativity—provided ego control is maintained—although it may serve as one of the bases for motivation.

4. A minimal level of divergent thinking abilities is essential for creative productivity.

5. A minimal level of convergent thinking abilities is essential for creative productivity.

6. A minimum level of special abilities is essential for creative production in certain fields.

7. A strong ego, a preference for complexity, esthetic sensitivity, and flexibility in thinking are all essential personality traits for creative work regardless of level, field, or type.

8. Six other personality traits are essential for high level creativity production: initiative, dominance, introversion, independence, perseverence, and a striving for excellence.

9. Flexibility in thinking is the main factor differentiating high-creative from low-creative work of equally productive persons.

10. The creative process consists of (*a*) exploration of the environment, (*b*) "inward turning" and concentration on association of previously internalized stimuli, and (*c*) manipulation of the environment (to produce the product) with frequent comparisons of the product against both internal and external criteria.

11. Too little stimulation or lack of stimulation in breadth in early lives, or a lack of stimulation in depth in later lives of persons will negatively affect the creative process in their adult lives.

12. A continuation of stimulation of a breadth nature from adolescence on will result in competing or distracting stimuli being introduced into the creative process in the adult lives of the persons and will negatively affect the creative process.

To test these hypotheses, subjects should be studied by field (e.g., painting, writing, acting) before combining the results for an overall view. The level and types of creative persons must be identified within field, and it is especially important that level and type be based on a critical evaluation of the product concerned. So that comparison among studies will be more meaningful, standard measuring instruments should be used whenever possible. In addition, all research designs should permit comparisons to be made among the traits and the dimensions of creativity.

There has long been a contention by some that turmoil, unhappy love affairs, and chaotic conditions are what lead to ingenuity and really creative, artistic output. For this reason, artists have in the past hesitated to undergo therapeutic treatment. Therefore, **Fried** (1964) conducted a longitudinal study of changes in artists' work patterns as they occurred after the first nine months of psychoanalytic treatment. He observed how work habits were affected once the artists, "under this impact of psychoanalytic therapy, began to dissolve some conflicts, exchange old conflicts for new ones, depart from regressive life habits, experience new balances between the id-ego-super ego structures, and repair specific ego-weaknesses" [p. 4]. The sample for the study consisted of patients at the Postgraduate Center for Psychotherapy in New York who had achieved a considerable degree of artistic expression and technical skill and who were full-time painters, sculptors, writers, composers, performing musicians, or actors. Rather than focus on a large sample which would involve shorter treatment and a survey-type report, it was decided to concentrate on a smaller number of patients who could be treated more extensively and observed in depth. The sample consisted of one sculptor, three painters, one writer, and one actor-singer. Questionnaire responses and staff observations over a 3-year period provided the data for the study.

Ratings and questionnaire data were analyzed separately by two independent judges. It was found that the psychological adjustment of five of the six subjects had markedly improved and that this resulted in better and more effective creative work habits and patterns. All work patterns improved, although in different degrees. As therapy progressed, communication with their own unconscious improved greatly. It was also discovered that more ease in human relations added to and did not detract from the creative effort. The results suggest that an artist does not have to be unhappy in his or her personal life in order to summon sufficient energy to create. The artists generally reported being more satisfied with their artistic output as a result of the psychotherapy.

Gross, Cattell, and Butcher (1967) studied the personality patterns of 63 artists (14 professionals and 49 art students), 28 craft students, and 63 lecturers and students who were not artists and served as a control group. Group means were compared using tests of significant differences, and comparisons were also made with student and general population norms, on Cattell's *16 Personality Factor Questionnaire.*

Significant differences were found in mean scores between the artists and the control group on 12 factors. On 11 of the 12 factors, the scores of the craft students were intermediate between those of the artists and the controls. Artists tended to be characterized by a reserved, schizothymic tendency and by assertiveness, dominance, self-sufficiency, low emotional stability, low self-integration, and low superego strength. They were also more suspicious, more apprehensive, overwrought, and guilt prone. In terms of second-order factors, the artists were seen as slightly more introverted, anxious, experimenting, nonmoralistic, and sensitive.

Interest patterns related to creativity were sought by **Helson** (1965) from cluster analyses of the childhood interests reported by 135 Mills College seniors nominated by the faculty as being outstandingly creative. Two clusters were found to have consistent associations with creative criteria, and these were replicated on a sample of 139 women who were upper-division psychology students at the University of California: an imaginative-artistic cluster and a tomboy cluster. As a follow-up to the study, **Helson** (1966) explored personality factors related to the first cluster, the childhood pattern of imaginative and artistic interests. The same Mills College sample was used, and the personality measures were the *California Psychological Inventory* and the *Minnesota Multiphasic Personality Inventory.* In addition to the questionnaire completed by the students, the parents were sent a questionnaire.

Mills College women with imaginative-artistic (IA) syndrome characteristics (enduring interest in imaginative and artistic activity, mistrust of personal relationships, impulsivity, rebelliousness, investment in inner life, independence of judgment, and originality) but not nominated by the faculty as being creative were compared with the creative LA group on all available data using *t* tests. The hypotheses had been advanced that the creative IA women would be (*a*) more masculine, (*b*) more original, (*c*) more intelligent, and (*d*) have a stronger need for accomplishment than the "noncreative" IA women. The results confirmed only the last two hypotheses. The results also suggested that the creative IA women had stronger symbolic interests, stronger need for autonomy, a lesser need to act on impulse, and stronger motivation to take the creative role than did the other IA women. In addition, their fathers were more intellectually oriented and placed more value on moral integrity than did the fathers of the other IA women.

Karang (1964) used a sample of 11-year-old elementary school children, a sample of 13-year-old elementary school children, and a sample of college students in Sweden to explore factors which according to Guilford's (1957) scheme are important for creative work in graphic art even though they do not concern production. The exploration was concentrated in the areas of memory (recognition and reproduction) and evaluation. Each elementary school group was split into an artistic group and a nonartistic group through independent judges rating the children's drawing. An artistic college student group was composed of students at the School of Art Teachers of the State College of Art-Crafts and Design, Stockholm. The other group of adults consisted of students at the Teachers' Training College at Uppsala. Instruments were constructed for recognition (subjects were asked to identify from a series of projected pictures those they had been shown 2 minutes previously for 2$^1/_2$ seconds each); reproduction (after viewing a simple figure for 2$^1/_2$ seconds, the subjects were given 15 seconds to reproduce the figure on paper before going on to the next one); and evaluation (from a simple projected figure surrounded by four half-size figures similar to the original, subjects had 15 seconds before changing to the next projected picture in the series, in which to decide on the small figure that was an exact half-size copy of the original).

Point-biserial correlations were computed on each test between the means of the artistic and nonartistic groups at each age level. Comparisons between the means for the adult groups were also made using *t* tests. Artistic ability was related to recognition scores only for the 11-year-old group. Memory and proportion scores were related to artistic ability for all three age levels.

Munsterberg and Mussen (1953) compared the personality structures of 30 outstanding art students and 30 nonart students at Ohio State University matched in age, sex, and years of college using 10 *Thematic Apperception Test* (TAT) cards and a questionnaire adapted from the Allport-Vernon *Study of Values*. The study was an attempt to check seven hypotheses about the personalities of artists which had been derived from psychoanalytic writings and research: (*a*) More artists have conflict with parents, have intense guilt feelings, are introverted and have a rich inner life, have creative and self-expression needs, and show need for acceptance of their work. (*b*) Fewer artists show overt aggression, show need for personal acceptance, and show compliance to parents' wishes. The traits, motivations, and conflicts involved in the hypotheses were translated into TAT needs and press and categories of questionnaire responses.

Chi-square analysis indicated that significantly fewer artists than nonartists gave evidence of overt aggressive tendencies. More artists than nonartists had intense guilt feelings as well as a rich inner life and were introverted. The artists had stronger needs for creative self-expression but were unwilling or unable to comply with parents' or society's demands. All hypotheses except the first one were at least partially supported. Although there was no evidence of more artists experiencing conflict with their parents, there was evidence that these conflicts were handled differently by the two groups with more nonartists showing overt aggression and more artists leaving home in response to it.

Pine (1959) related thematic drive content to creativity for a sample of 13 female and 14 male able undergraduate students chosen on the basis of a *Minnesota Multiphasic Personality Inventory* profile indication of emotional stability. Instruments used were the *Thematic Apperception Test, Science Test, Humor Test, Consequences Test,* and *Brick Uses Test.*

Rank correlations constituted the statistical methodology for the study. The central finding was that higher quality literary productions included more drive content than did lower quality productions. A positive correlation was found between controlled drive expression and quality of production.

Skager, Schultz, and Klein (1965) studied quality and quantity of accomplishments as measures of creativity. An activities questionnaire composed of items describing achievement of a creative type was developed for use as the criterion instrument. For a sample of 292 entering college freshmen, quality and quantity scores were significantly correlated, although quality was more highly related to academic aptitude whereas quantity was more highly related to a measure of intellectual stimulation in the home.

Skager, Schultz, and Klein (1966) also studied differences in the ratings of quality of creative products among a heterogeneous group of judges—in other words, whether or not more than one point of view about quality was held by these judges. One hundred ninety-one sophomore students at the Rhode Island School of Design took a drawing test, with the drawings to be rated for esthetic quality by 28 artist and nonartist judges. Four points of view about quality were identified by factor analysis of correlations among judges. Evidence was found that personality, academic, and background characteristics of the students were differentially related to quality of their drawings as defined by the four points of view. Specifically, choice of major, academic performance in fine arts courses, scores on certain aptitude tests, and measures of wealth of cultural background had differential correlations with the points of view.

Success Viewed as Development of Aesthetic Creativity and Artistic Skills: Published Literature

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SUCCESS VIEWED AS MORAL, PHILOSOPHICAL, AND RELIGIOUS DEVELOPMENT

College officials, including those at secular colleges and universities as well as those at church-related institutions, want the college to help students develop morals, values, healthy attitudes, and a philosophy of life. There is wide disagreement, however, about the actual change desired in students. Some officials want students to develop some specific moral and value system and philosophy of life while others merely want their students to develop a value system and a philosophy of life of some kind, of the student's own choosing. Indicative of the concerns society and colleges have in this area was the "outcry" that went up in the late fifties when Jacob's[1] large-scale study (1957) concluded that students generally exhibited little, if any, change in "basic values" during the college years. Much subsequent research on attitudes and values in college students was stimulated by Jacob's findings, and these have tended to indicate that some changes do tend to take place during the college years.

As in other areas, little has been done to ascertain the interactions of student characteristics and environments and to determine what particular aspects, if any, of the environment are having an effect(s). To illustrate, research on changes in religious attitudes and values has generally shown a decline in religious orientation during the college years. Yet, Knapp and Holzberg's[2] (1963) findings in their study of college students volunteering for a program of service to mental patients seem to suggest the possibility, although they did not look at change, that special programs and experiences could possibly increase students' religious interests. Furthermore, officials of some colleges under fundamental religious control would contend that numbers of their students are becoming more religious as a result of their college experiences.

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[1] Jacob, P. E. *Changing values in college: An exploratory study of the impact of college teaching.* New York: Harper, 1957.

[2] Knapp, R. H., & Holzberg, S. D. Volunteering for service to mental patients. *Journal of Consulting Psychology*, 1963, *28*, 82-85.

Even in a study where nearly everyone changed toward less religiosity (Hites,[3] 1965), there were large individual differences in the amount of change found.

If a goal of the college is to instill values of citizenship, humanism, and other socially desirable values in its students, officials can turn to a number of studies using college students to explore the mechanics of attitude and value change and to develop special procedures that will bring about such change. Interestingly, some general studies which used college students solely because they were available for psychological experiments never become a really integral part of the literature on colleges and students because that was not their emphasis, e.g., Rosnow and Robinson's[4] (1967) book on experiments in persuasion. Yet, such studies can conceivably make important contributions if integrated with the college literature. Similarly, studies outside of the fields of education, psychology, and social psychology have sometimes been overlooked by psychologically oriented experts in the field.

Development of Altruism, Humanism, Citizenship and Moral Character

This section of the chapter covers those references dealing with socialization or character development, i.e., the development of attitudes, values, and philosophies that are pretty much universally accepted by society. They may not be seen as desirable by all levels of our society, e.g., people in the ghetto, but they are considered foundations of our democracy and the middle class way of life which has always been a guiding factor in what the schools of our country teach. "For motherhood, God, and country" is a classic, though trite, statement which exemplifies this viewpoint. Such a character development mission is a basic goal of all elementary and secondary schools, and almost any college catalog also espouses one or more such goals. Many church-related colleges and others consider character development to be as important a reason for their existence as is the goal of preparing for an occupation or teaching intellectual knowledge.

In spite of the emphasis placed on socialization in many colleges and universities, little research has been conducted to explore how to best bring about such change or whether the institutions are, in fact, being successful in meeting their socialization goals. Most research has rather explored factors related to cheating, lawbreaking, and other negative activities and attitudes that the socialization experiences are meant to combat. Such research may add to our understanding of these phenomena and provide suggestions concerning preventive measures that may be effective in reducing the incidence of such antisocial attitudes and actions.

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[3] Hites, R. W. Change in religious attitudes during four years of college. *Journal of Social Psychology*, 1965, *66*, 51-63.

[4] Rosnow, R. L., & Robinson, E. J. (Eds.) *Experiments in persuasion*. New York: Academic Press, 1967.

Three socialization areas have already been covered in previous chapters: (*a*) development of an intellectual outlook and attitudes; (*b*) development of a respect for others and their views; and (*c*) development of aesthetic and cultural interests, appreciations, and feelings. Insights gained there may also be applicable to the development of altruism, humanism, citizenship, and moral character.

Indicative of the still common feeling that all colleges, not just those that are church-related or private nonsectarian, should attempt to influence student mores is the following statement by a former president of the University of Oklahoma, George I. Cross:[5]

> Those responsible for higher education have stressed subject matter and the development of professional "know how" too much and have not done enough to develop in their students the moral values and ethical attitudes that will be necessary if the fruits of our research and laboratories and the products of our professional schools are to be used wisely in human affairs.
>
> The great disparity between our ethical and moral development, as compared with our scientific and economic development, is the barrier which may prevent a wise use of the knowledge and power we now possess [p. 168].

Success Viewed as Development of Altruism, Humanism, Citizenship, and Moral Character: Selected Annotations

Aronson and Mettee (1968) used cognitive consistency theory to hypothesize that if a person is tempted to cheat, it will be easier for him to yield to the temptation if his self-esteem is low than if it is high. To test this hypothesis, 45 women students in introductory psychology classes at the University of Texas were randomly assigned to high, low, or neutral self-esteem conditions. All subjects came to the first session together and were given the self-esteem scales of the *California Psychological Inventory* (CPI), which was administered by a person who introduced himself as a member of the University Counseling Center staff. They were told that the experiment was concerned with ESP and personality characteristics and that ESP ability would be measured at the next session.

The subjects were assigned to arrive in groups of three at the second session. At the second session each subject was given an envelope which contained information about the CPI results that was actually unrelated to the actual results, and then they were sent to separate offices to look at the information contained therein. The subjects were, on a random basis, given false feedback aimed at temporarily introducing either an increase, a decrease, or no change in self-esteem. They were then allowed to participate in a game of cards in which they were provided with opportunities to cheat under circumstances which made it appear impossible to be detected. Chi-square tests evaluating cheating frequency among the higher, lower, and no change in self-esteem conditions were significant at the .05 level. Significantly more people cheated in the low self-esteem condition than in the high self-esteem condition.

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[5] Moral values and higher education. *School and Society*, 1956, *84*, 168.

Barkley (1942), in an early study at the Women's College of the University of North Carolina, compared a group of 79 1-year commercial students with a group of 60 liberal arts students on the development of moral judgment through one year of college, and followed the liberal arts students through four years of college. The commercial students were treated exactly as freshmen except they lived in their own dormitory, as did the first-year liberal arts students.

The instrument used to measure change in moral judgment (pre-test and post-test) was the *Shields Moral Judgments Examination*, and several other pretest measurements were given between the second and sixth week on campus: the *Carnegie Mental Ability Test;* the *Thurstone Personality Schedule;* and three attitude instruments measuring attitude toward the law, attitude toward God, and attitude toward the church. Critical-ratio tests indicated that the liberal arts students had significant improvement in the development of moral judgment during the first year while the commercial students had *no* significant change. When beginning level of moral judgment was correlated with the other variables separately for both groups, it was *not* significantly related to neurotic tendency, attitudes toward God, attitudes toward the law, attitudes toward the church, or age in the first-year experience. However, level of moral judgment was significantly correlated with level of intelligence and with socio-economic status as measured by level of father's occupation.

When change in moral judgment was examined for the liberal arts students, it was discovered that there was a significant amount of change for each of the first three years. However, it tapered off after the end of the sophomore year, and there was but slight change during the senior year.

Bidwell and Vreeland (1963) were concerned about the conditions under which colleges are effective and the conditions under which colleges are ineffective as agents of moral socialization. They also were concerned about the socializing mechanisms or the forces in the college which prevent effective socialization. Since the few studies exploring socialization and value change in college had obtained mixed results and since most of the studies did not differentiate subsystems within a college (nor did some of them differentiate types of colleges), the authors set out to develop a theoretical model that could explain the discrepancies found in the research literature. In applying the model to the studies in the literature, they concluded that there was more order in the study results than would at first appear.

The approach taken to develop such a model was to consider how the characteristics of colleges as formal organizations may affect the moral socialization of students, and colleges were placed in the class of organizations called "client-serving," and a typological framework for the study of this class of organizations was set forth. Characteristics of inducting organizations which adapt them to a technology of social interaction are (*a*) a normative authority structure in which active involvement opens the client member to organizational influence, (*b*) the client-member role is an organizational role, and (*c*) the client-member role is highly visible to the organization's staff. One may expect some socializing organizations to be more effective than others in changing client members' values and attitudes according to the variability and the scope of the client-member role and the variability of institutional goals. From this it can be hypothesized that (*a*) the strength of the moral impact of the college is directly related to the extent to which the involvement of students approaches the communal extreme and (*b*) the homogeneity (degree of convergence) of the moral impact of the college is directly related to the salience of moral aims among the college's goals.

When the two dimensions of "scope of client-member involvement" and "goals" are combined, they form a 4-cell typology: (*a*) a doctrinal-administered community (communal client-member involvement with moral goals) in which there is a very strong, homogeneous moral impact; (*b*) a procedural-administered community (communal client-member involvement with technical goals) in which there is strong, heterogeneous moral impact; (*c*) a doctrinal-administered association (associational client-member involvement with moral goals) in which there is moderate, homogeneous moral impact; and (*d*) a procedural-administered association (associational client-member involvement with technical goals) in which there is no significant moral impact. When the college is unified organizationally and is a single-purpose organization, the typological framework is appropriate to the total college. When the college is a multipurpose organization, the framework is more properly applied at the subsystem level. In cases where there are different institutional subsystems of differing types, the students may be exposed to cross pressures which have important effects upon their moral socialization.

The hypotheses are subject to modification by four problems endemic to socializing organizations: (*a*) recruitment and consensus, (*b*) the implicitness of the contracts, (*c*) surrogation in contracting, and (*d*) conflicting role definitions and structures of authority. Additional hypotheses concerning modifying effects of these organizational problems are as follows: (*a*) The moral impact of the college is directly related to the level of moral consensus (interpersonal attractiveness and charisma) among the staff and students. (*b*) The moral impact of the college is directly related to the level of consensus over goals between the staff and the students. (*c*) The moral impact of the college is inversely related to the extent of surrogation in the utilitarian contract. (*d*) The moral impact of the college is inversely related to conflicting definitions of the student role by professional staff and administrators and to the scope of authority of the student administrators. Devices for maximizing the moral influence of the organization are (*a*) temporal and spatial manipulation, (*b*) manipulation of role structures, and (*c*) utilizing collective contexts.

Bonjean and McGee (1965) found extensive scholastic dishonesty at two large Southern state universities, although not to the same extent in each. They wondered if the difference between the two institutions was due to different student characteristics at the two universities or whether it was due to the different forms of social control being used. The two universities defined certain behaviors identically as constituting scholastic dishonesty, but differed in the techniques of control used: one used an honor system while the other used a proctor system for enforcement.

A random sample of 400 undergraduates from each university anonymously completed a personal background questionnaire which also asked them to react to six hypothetical "dishonesty" situations: (*a*) Would it be a violation of university rules? (*b*) Would your friends approve of this action? (*c*) Have you or would you do this in the same situation? (*d*) Would you favor action by the faculty discipline committee (or honor court)? Questionnaires were delivered and the sealed envelopes collected by undergraduates in the hope that a higher response rate would result. After 25 alternate students were selected and used as replacements for the nonresponders, 200 useable questionnaires were obtained from "Southeast University" (which had the internal control system) and 192 from "Southwest University" (which had the external control system).

Corrected chi-squares were computed to determine the significance of the associations between nine student characteristics and violation behavior, and a corrected phi coefficient was computed for each to assess the degree of association. The characteristics most closely associated with violation were fraternity-sorority membership and inactive or moderately active religious participation. Group attractiveness ranked third in degree of association with violation, but the relationship was not statistically significant. Length of time at the university did have a statistically significant relationship with violation in the expected direction, but the degree of association was less than for "group attractiveness." Low GPA, urban background, high father's occupational status, and being a male were each slightly associated with violation; but in no case was the association statistically significant. Attendance at a public versus a parochial high school had *no* relationship to violation.

All five situational variables were significantly related to actual or potential participation in the six situations of scholastic dishonesty. Listed in the order of degree of association with violation, they were (*a*) perceived source of control, (*b*) perception of friends attitudes, (*c*) perception of the formal norm, (*d*) perceptions of instructors' attitudes, and (*e*) fear of sanctions. It was concluded that situational characteristics appear to be more closely associated with violation than do personal background characteristics. Furthermore, when direct comparisons between the two universities were made, they were quite similar on the personal background characteristics but significantly different in the percentage of actual or potential violators of the system. Only 58% of the Southeast University sample had engaged or would engage in the six violation situations, while for the Southwest University sample the figure was 81%.

Educators are charged with the responsibility of helping students grow toward democracy, and yet they are forced to make selections and to apply decisions in this area largely by chance. The reason is that there has been no body of tested experience that is known to develop democracy. Therefore, **Freehill** (1955) attempted to differentiate students with a democratic orientation from other students at Western Washington College of Education on the basis of competencies, life experiences, and other identifiable characteristics. First, 30 faculty members in ten committees of three members each selected 102 students whom they felt exemplified extremes in the presence or absence of a democratic attitude of respect for others. Then 1,068 unselected college students were given an advanced trial form of the *Problems in Human Relations Test*. The test was scored on a major or "Democratic" (D) scale and on four subscales designed to describe the nature of low D scores: Hard-boiled Autocrat (HA), Benevolent Autocrat (BA), Laissez-faire (LF), and Resort to Expert (RE).

Zero-order correlations were used to relate scores on the test to more than 50 variables based on biographical data, personality and interest inventory scores, academic ability, and high school data. Critical-ratio tests were used to compare the two faculty-selected groups on the same values. Sex had the most pervasive effect, with much more democracy existing among women than among men. Other variables significantly related to democratic orientation when using both kinds of statistical tests were academic competency (next in importance to sex); age; college tenure; personality; interests; critical thinking; community in which grew up; father's occupation, income, and education.

Gough (1966) compared nondelinquent males of average or above average social maturity (high school and college students and employed adults) with institutionalized delinquents and adult prison inmates having a low level of social maturity using all 18 scales of the *California Personality Inventory* (CPI). An initial sample of 2,146 nondelinquents was compared with a sample of 881 delinquents.

When point-biserial correlations between the two groups were computed, it was found that 17 of the 18 scales differentiated the groups. Next, a 3-variable regression equation was developed which had positive weights for Responsibility and Sociability and a negative weight for Good Impression. Then a 6-variable equation was developed with positive weightings for Socialization, Responsibility, Flexibility, and Dominance and negative weightings for Good Impression and Communality. Both equations differentiated between the two groups. Similarly, among nondelinquents, they both differentiated between cheaters and noncheaters on course examinations and between more and less responsible high school students. Adjectival analysis showed high scorers on the equation to be dependable, foresighted, and capable.

Cross-validation of the equations was carried out with 2,482 nondelinquents and 409 delinquents. Comparisons were also made for cross-cultural validation using two samples of Italian men. In addition, comparisons were made between cheaters and noncheaters who were all nondelinquents. Both equations significantly differentiated the sets of cross-validation samples.

In several studies of Navy enlisted men and male students at Temple University, **Kipnis** (1968) related character development as measured by the *Insolence Scale* to various subject behaviors and values. Analysis-of-variance procedures were utilized. Since previous studies had indicated that intellectual ability moderates the relationship between measures of character structure and behavior, the relation between character structure and behavior was investigated at several levels of intellectual ability whenever possible.

Findings of the study were that men classified as high in impulsivity in comparison to those classified as low in impulsivity were (*a*) less accepting of conventional middle-class values related to rules and regulations, (*b*) overestimated the passage of time, (*c*) were more easily instigated to aggression, (*d*) were less likely to experience feelings of shame or fear, and (*e*) reported more clique-like friendship relationships. There were indications that intelligence was acting as a moderator for many of these results.

Knapp and Holzberg (1964) compared personal characteristics of 85 Wesleyan University men volunteering for a program of service as companions to chronically ill mental patients with a control group of 85 men not participating in the program. Scales used included the *Minnesota Multiphasic Personality Inventory*, the *Edwards Personal Preference Schedule*, and the Allport-Vernon-Lindzey *Study of Values*.

A *t* test was used to indicate the significant differences between the two groups of students on each instrument. Participants were slightly more religiously oriented, more morally concerned, more compassionate and capable of generosity, more introverted, and more idealistic in temper than were nonparticipants. It was suggested that a program such as this one serves "as an outlet for certain impulses of human generosity and altruism not normally available to students in the college environment [p. 85]."

Rosen and Bates (1967) explored the structure of socialization in the American graduate school at the departmental level, paying particular attention to the influence of certain structural factors typically ignored in most psychologically oriented discussions of the socialization process. Learning theories do not describe the content of a cue, do not explain why particular responses are rewarded, nor identify what is regarded as the rewards.

Based on long, continued participant observation and reading in the area, the authors are convinced that one cannot adequately understand the socialization process in an organization engaged in training discipline specialists without taking the following dimensions of social interaction into account: division of labor, the expression of affect and the flow of communication, the nature and distribution of power and authority, and the degree of consensus and conflict. The ideal structure of socialization in the graduate school results from motivated agents conveying all essential information to the neophytes accurately and completely. The agents also act as role models that embody, represent, and dramatize the goal toward which the neophytes are moving. The neophytes bring strong and appropriate motivation and background preparation to the task, plus other qualities and characteristics defined as essential by the agents and certified by them to be present in these neophytes. The neophyte is passive to the extent that he is the receiver of knowledge, yet he will be active in the pursuit of knowledge and in developing critical and innovating intellectual habits. In other words, the agent and the neophyte are bound together in a relationship lasting a period of years which is important to the agent and essential to the neophyte.

Sawyer (1966) developed an altruism scale in which altruism was conceived as "a characteristic that may vary within individuals as a function of the object of the altruism and of the commodity and situation in which it is expressed [p. 410]." For example, a person may be altruistic with time but not with money. Similarly he may be altruistic toward peers but not toward subordinates. In Sawyer's instrument the person is requested to report what he feels his behavior would be in various specific natural situations where the choices he makes will affect his own and another's welfare. To validate the instrument for generality and discriminability, altruism was measured both by ranking of outcomes and by direct scale estimation for three different groups of college students (social science students, business students, and YMCA students), each toward three different alters (friend, stranger, antagonist) and in two situations (college grades and salary after graduation).

Findings of the study were as follows: (*a*) The three college groups all differentiated among friend, stranger, and antagonist. (*b*) The YMCA students were generally more altruistic; they were more positively oriented toward the other's welfare for all three alters. (*c*) The social science and business students both had mean altruism scores near zero, but differed in the extent to which they discriminated among friend, stranger, and antagonist. (*d*) The business students maximized their own reward more than did students in the other two groups; they help themselves. (*e*) The social science students differentiated the most between friends and antagonists; they help those who help them. (*f*) YMCA female students were more altruistic than were YMCA male students, while social science female students had altruism scores similar to social science male students. (*g*) Authoritarianism as measured by the F scale correlated −.03 with the altruism scores. (*h*) YMCA male students who were married had a mean altruism score of .39 compared with a mean score of .15 for YMCA male students who were single. (*i*) YMCA male students having no older sisters had a mean altruism score of .14 while YMCA male students having at least one older sister had a mean altruism score of .47. The number of older brothers, younger brothers, or younger sisters was not related to altruism for these students.

Whitehurst (1969) investigated the potential impact on marriage as an institution of nonmarital living arrangements on campus. Background factors leading to nonmarital living arrangements on campus included such things as increased importance of higher education, liberal education, autonomy, and democratic decision-making; wide acceptance of a new honesty and involvement ethic among college students; and the failure of a deferred-gratification pattern, especially as it related to sex, the pill, alienation, etc.

A total of 55 college students involved in nonmarital living arrangements were interviewed and the data coded. From the data it was concluded that there are four nonmarital types: (*a*) the love child or promiscuous variety, (*b*) the weekender, (*c*) the experimental semester type, and (*d*) the premarital testing type. Each type was found to have its own particular interpersonal problems. It was suggested that this new adaptation of college students may have an important effect on the future of monogamous marriage in this country.

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Development of Attitudes, Values, Beliefs, and a Particular Philosophy of Life

An attitude is characterized by a positive or negative response to particular ideas, concepts, objects, persons, places, events, situations, etc. It is a predisposition to action and serves as a cue for action. Attitudes are of varying intensity and direction and are characterized by stability and consistency. They are not necessarily based on conceptions of what is desirable.

Preferences based upon a conception of what is desirable are known as "values." Values are learned goals, and when they become strong enough they become beliefs (which indicates a willingness to act). Within a person, values and beliefs are grouped into patterns called value systems or philosophies of life. Such value systems give the student answers for what life is all about, why he exists, and why the world exists.

To introduce the topic of value and attitude changes for college students, an excellent discussion by Dressel (1965) is herein summarized. Dressel stated that value changes during college are desirable for some students, although the nature or the direction of change cannot be unequivocally ascertained. He contended, however, that value changes during college are not desirable for all students, that the value patterns for some entering college students are already so well formed that no change is needed. (Otherwise the student may attain "too much" of the value.) On the other hand, certain students should not even be allowed to enter college, according to Dressel, because they have not reached an adequate point in their value development. For those changes which a college sees as being desirable in certain of its students, slow and gradual change rather than marked change should be the goal.

Concerning possible changes in values, five types of change were noted by Dressel. Those five types of change are as follows: (*a*) an increase in the awareness of values, value differences, and value conflicts; (*b*) changes in the hierarchical order of the student's values; (*c*) changes in the normative base upon which the student is basing his values; (*d*) shifts in the student's position on a value continuum; and (*e*) bringing about a rejection of previously held values and replacing them with acceptance of new values.

Values can be classified as process values or ultimate values. Ultimate values are values which persons holding them consider preeminent and obvious. Although certain ultimate values such as truth, beauty, and goodness are generally accepted, Dressel concludes that these types of values pose problems of judgment rather than provide answers. Therefore, he says:

> Many careful thinkers on the role of values in higher education tend toward the conclusion that only the process type of value should be set up as a definite goal toward which individuals might be moved as a result of their college experience. . . Process values are those means or methods in which value is attached because they lead to wise judgments regarding the relationship of decisions and behavior in ultimate values. Generally, higher education in talking about process values, has, in the words of Edward D. Eddy, Jr., emphasized "the equality of intellectual dissatisfaction, logical thought, and integrity in thought and action [pp. 107-108]."

Next comes the question of how values are formed or changed. Possible agents listed for affecting change were imitation and habituation, identification, communication of affect, intervention in the pursuit of instinctual gratification, enforced obedience, disarming by vulnerability (which may result in behavior change but not value change), and communication of knowledge and cultivation of intellectual abilities. Underlying variables mentioned were the continuum extending from conscious to unconscious, internal-external initiation of the change, comparative or normative use of standards or patterns by an individual, the dichotomy of affect and intellect, and the continuum extending from introspection through to actual behavior.

What approaches to value change are appropriate to higher education? Dressel enunciated five principles: (*a*) Instructional practices in higher education should be so planned as to make the student conscious of value problems. (*b*) Higher education should approach values in ways which emphasize comparative rather than normative use of reference groups and authority. (*c*) Higher education should approach value changes in ways which encourage internal rather than external initiation of value change. (*d*) Higher education should approach values in ways which emphasize those values we have designated as process values, that is, those which relate to the manner in which judgments are made and decisions arrived at. (*e*) Values should be approached in such ways that individuals are encouraged to act on a value-oriented basis rather than to become so engrossed in values as to be incapable of making decisions.

Officials at many church-related and other colleges would disagree with Dressel's contention that only process value change should be the goal of a college. For this reason, references dealing with change in ultimate values during college have also been included in this section.

Success Viewed as Development of Attitudes, Values, Beliefs, and a Particular Philosophy of Life: Selected Annotations

Comrey and Newmeyer (1965) factor analyzed political and social attitude items that had been rated for agreement-disagreement by 212 UCLA student and nonstudent volunteers. The radicalism-conservatism factor was examined to see how general it was or whether it was best considered to be a composite of substantially independent variables.

Intercorrelations were computed after which the matrix was factor analyzed using the minimum-residual method followed by Varimax rotation. Next, the nine orthogonal factors found were rotated obliquely, guided by simple structure and psychological meaningfulness as criteria. A table of correlations among the factors was formed which was subsequently analyzed by the principle-factor method to provide knowledge of the second-order factor domain.

Of the nine factors found, five of them had at least two factor loadings of over .60. Those five factors were religious attitudes, punitive attitudes, nationalism, welfare-state attitudes, and racial tolerance. A composite of the five factors might be considered radical-conservatism. Previous factor analytic studies on this topic in the literature which did not use rotation were purported to be deceiving because they had shown radical-conservatism as a general factor without any indication of the correlated primary factor-level components.

Although research had demonstrated to their satisfaction that significant changes in attitudes, values, and beliefs do occur between the freshman and senior years in college, **Dressel and Lehmann** (1965) could find no evidence that any one "factor from the multitude of college experiences explains changes in attitudes and values [p. 249]." The fact that change occurs during the college years does not even imply that the college had anything to do with it. Therefore, they conducted a study that would tell them something about degree and direction of change at various stages of progress through college and that would compare such changes to changes for students who withdrew over the four years.

The study involved 3,000 students from Michigan State University and two small liberal arts colleges. Instruments used included *Test of Critical Thinking, Inventory of Beliefs, Prince Differential Values Inventory, Rokeach Dogmatism Scale*, a locally developed college objectives checklist, two locally developed experience inventories, Allport-Vernon-Lindzey *Study of Values*, and *Wesley Rigidity Scale*. Data were collected from beginning freshmen and at the end of each year until they were graduating seniors. Only portions of the students were asked to complete certain instruments. Those who had dropped out of the college received questionnaires through the mail. Supplementary data were collected by interviews with students during the sophomore and junior years and by interviews with academic personnel.

A myriad of data analysis methodologies were used to analyze the data. These included analysis of variance, analysis of covariance, multiple-discriminant function analysis, factor analysis, content analysis, and various subjective judgmental assessments.

It was concluded from the results of the study that the values and attitudes of college students do change during college and that the amount and nature of this change is generally related to the period of time spent at the college. However, change in varying degrees and in some cases even in different directions was noted for individual students and for identifiable groups of students.

Important differences in values and attitudes were noted for different demographic groups: males versus females (stereotyping in their beliefs, dogmatism, receptivity to new ideas, traditional-value orientation); Catholic versus Protestant versus Jewish students (traditional-value orientation); Protestant students from liberal versus fundamentalist sects (stereotyping in their beliefs, dogmatism); rural versus urban (traditional-value orientation); lower socio-economic class versus middle class versus upper class (stereotyping in their beliefs, traditional-value orientation); and curricular majors (stereotyping in their beliefs, dogmatism). Interestingly, no significant differences in attitudes and values were found between those whose parents were native-born and those whose parents were foreign born.

In general, students improved significantly in having fewer stereotypic beliefs during all four years of college and in moving away from traditional-value orientation during the first three years of college (but not the fourth year). In addition, during each of the four years they became more flexible and less authoritarian, more liberal in their views and opinions about standards of behavior, more aware of their life goals, less prejudiced, and more likely to question absolutes in morality and religion. In all of these changes, however, the major changes took place during the first two years of college. With only one exception (dogmatism for males) there was greater homogeneity at the end of the senior year than at the beginning of the freshman year. A small percentage of students changed in a negative direction, became more stereotypic and prejudiced in their views, less tolerant of others, less receptive to new ideas, and more authoritarian. For both males and females, there was *no* significant relationship between length of college attendance and decrease in stereotypic beliefs, decrease in dogmatism, receptivity to new ideas, and more open-mindedness.

Concerning student self-report, a sizable percentage of students felt they had undergone no marked change in their attitudes, values, beliefs, and interests while at college. Although many reported that they had become less attached to a particular religious orientation, they reported *no* decrease of belief in the value of religion in a mature life. In general, they felt that the most significant thing that had happened to them or that they had learned while at college was to get along with all types of people. Discussion and bull sessions seemed to be the most potent factor in shaping their attitudes and values during college. Before the junior year, courses and instructors were rarely mentioned as having a marked impact upon student attitudes and values. Beginning with the junior year, however, the formal academic experiences (especially courses and instructors in their major fields) began to assume an increased, although not predominant, importance. For both males and females, instructors and courses in the humanities were most frequently reported as having had a reinforcing or modifying effect in values and attitudes.

After controlling for differences found in critical thinking ability between students at the university and students at the two liberal arts colleges, no significant difference was found between the two types of institutions (neither for males or females) in dogmatism or traditional-value orientation. There was a difference in stereotypic beliefs, however, with such beliefs being more in evidence at the liberal arts colleges.

Goldstein and McGinnies (1964) conducted a study that involved few subjects, but that is noteworthy because of its experimental nature. A 23-item Likert-type scale measuring attitudes toward the church was administered to 600 students in the introductory psychology course at the University of Maryland. Based on the results, 12 subjects were selected from each of three segments of the total distribution which resulted in a pro-church, a neutral, and an anti-church group (means were 35.0, 67.4, and 94.1, respectively). These students were to serve as listeners for the experiment.

An additional 12 subjects were chosen at random from the pro-church end of the distribution to serve as speakers and as objects of the differential social reinforcement effects that were anticipated from contrived audiences. Each of the 12 students read a strongly anti-church essay before 3-person audiences. Unknown to the subjects, four of them read to pro-church listeners, four read to neutral groups, and four read to anti-church persons. All groups discussed the reading for 12 minutes, then all 48 students were given the attitude scale again.

Pre-test versus post-test *t*-test comparisons revealed that all speakers had a change in attitude toward the church that was consistent with the position taken by the communication. None of the three listener groups changed attitudes significantly, however. A Mann-Whitney *U* test revealed that significantly less change was observed for those speaking to pro-church groups as compared with those speakers addressing neutral or anti-church groups. The authors interpreted these findings as "supporting a reinforcement theory of attitude change in an induced compliance situation [p. 567]."

Gottlieb and Hodgkins (1963) studied the influence of the college student subculture on change in student attitudes and values for a sample of 977 college students who were completing their fourth year at a large Midwestern public university. Students completed a questionnaire which gathered information on their social origins, their attitudes and beliefs, their behaviors, their academic performance, and their subculture classification. Based on the questionnaire data, the students were classified into Trow's four subculture categories: vocational, nonconformist, academic, and collegiate. Of special concern were differences in reported attitude change during college for the four subculture groups.

Chi-square analysis indicated that more lower-class students were in the vocational subculture, while more middle-and upper-class students were in the academic subculture. Nonconformists received the highest grade point averages, while collegiates received the lowest. The greatest tendency was to shift to the academic subculture during college. The nonconformist group changed the most and the vocational the least in dependence. In attitudes toward religion, the nonconformist group changed the most, the academic next, then the vocational, and least of all the collegiate.

Hites (1965) studied change in religious attitudes of 60 students during four years at Birmingham Southern College, an institution affiliated with the Methodist Church. A 37-item religious-attitude questionnaire was completed by entering freshmen and four years later as graduating seniors. The questionnaire was completed again, along with Adorno's *California F Scale* and a biographical inventory.

Factor analyses of the inter-item correlation matrices were computed yielding three factors on which the item loadings were similar for both freshman and senior testings: (*a*) the function of religion and how revealed, (*b*) literal-nonliteral acceptance of the Bible, and (*c*) immortality and man's relation to the physical world. Change scores for the three factors were found by subtracting scores as seniors from scores as freshmen. Significant changes occurred on all three factors (although not shifting to the opposite extreme) from strong agreement to not-so-strong agreement or uncertainty. Though nearly everyone changed and all in the same direction, individual differences in amount of change were found.

Factor-change scores (corrected for the negative correlation of error variance) were intercorrelated and then correlated with freshman factor score and with scores on the *California F Scale*. Factor 1 correlated positively with the other two factors, although the correlation between Factor 2 and Factor 3 was not significant. Secondly, those who were the most conservative as freshmen tended to change the most in their attitudes. Furthermore, the amount of change on each factor was related significantly to *F-Scale* scores; students became more tolerant.

The differential change of various peer groups was also examined using chi-square tests of independence. College residence had no observed effect in most cases, although those men in the dormitories changed more on the second factor than did men living at home or women living in the dorms. When participants in campus religious organizations were compared with nonparticipants (limiting the two groups only to Methodists in order to increase homogeneity), participants changed significantly more than did nonparticipants on Factor 2; and the change was toward a less literal interpretation of religion. There were no significant differences among the three groups of curricular majors—teaching, ministry and Christian education, and medicine and dentistry—on any of the factor scores.

Huntley (1965) administered the Allport-Vernon-Lindzey *Study of Values* to 1,027 Union College men at entrance and again just before graduation to provide evidence on the question of changes in values during college. Critical-ratio tests of pre-test and post-test mean differences were calculated separately for nine different curricular groups.

Each group tended to reveal its own change pattern, and failure to keep the results separate would certainly account for some of the results reported elsewhere. Of 54 possible changes in values (nine groups x six values), 27 were significant beyond the .01 level. Evidence was also shown that value patterns were present at entrance, that for each curricular group there were one or two central values, and that over the four years of college there was an accentuation of the central values. For example, the premedical (science) majors had a significant increase in theoretical values over the four years, while the humanities majors had a significant decrease in theoretical values. Humanities majors had a significant increase in political values, while premedical (science) majors had a significant decrease in political values. Both groups changed significantly in a positive direction on aesthetic values, but the change was much larger for the humanities majors. Actually, all nine groups increased on aesthetic values and decreased on religious values. All groups except industrial administration majors decreased on economics values. The results for the other value scales were mixed.

Lehmann and Payne (1963) were interested in whether some experiential factors in college could be isolated which might explain the attitude and value changes that take place in college students. Therefore, they conducted a study in which they compared groups of Michigan State University students who exhibited quite different "true" change during the freshman year on responses to two attitude and value measures: "stereotypic beliefs" and "traditional value orientation." The three groups for each scale were as follows: (*a*) those who had increased their score at least 1.5 standard deviations above the post-test scores predicted for them by regression analysis, (*b*) those who had decreased in score at least 1.5 standard deviations below their predicted post-test scores, and (*c*) the remainder, referred to as the "nonchangers." Instruments used included the *Inventory of Beliefs* and Prince's *Differential Value Inventory.*

The data were analyzed using chi-square tests of significance. Attitudes toward courses taken and toward cultural activities were found to be significantly related to changes in attitudes and values for women. For men, initial attitudes toward college rules and regulations and friends were related to attitude and value change. While informal extracurricular activities appeared to affect value change, the authors concluded that the formal academic experiences (courses and instructors) had relatively no impact on the students' attitudes and values. Another important finding was that the data suggested a reinforcement rather than a modification of prevailing values.

Peterson and Koulack (1969) tested the hypothesis that the relationship between induced attitude change and communication discrepancy is nonmonotonic. More specifically, they attempted to determine whether the amount of attitude change exhibited by an individual is predictable from his latitudes of acceptance and rejection and whether there is a curvilinear relationship between attitude change and communication discrepancy as predicted by Whittaker (1967).

The sample consisted of 72 undergraduates selected from about 1,000 students enrolled in introductory psychology courses at Washington State University. Subjects were selected on the basis of their responses to an attitude questionnaire, and they all indicated identical attitudes toward the Vietnam war on a scale measuring their acceptance or rejection of the war along a 10-factor continuum. Three weeks later the subjects were each asked to write a 500-word essay in favor of a particular position on the war. They were individually assigned to write on a position that was randomly selected to be from one to six positions away from their previously favored position. After the essay had been written, they were again asked to complete the 10-factor rejection-acceptance questionnaire.

Mean changes in scale position from pre- to post-test were analyzed using analysis of variance, with attention focusing on shift of most acceptable position and the latitude of acceptance relative to the most objectionable position. Results indicated that the students changed their attitudes toward the various positions by showing an enlarged latitude of acceptance. Attitude change would seem to be most likely to occur in response to a communicated position which is not far removed from one's original position. The greatest shift among the undergraduates participating in this study occurred toward positions that were two and three positions removed from the end point of the latitude of acceptance. The most persuasive messages were those in Positions 4 and 5. The subjects at Positions 4 and 5 came to perceive the communication as lying within their latitudes of acceptance, although initially those positions were well within the students' latitudes of rejection.

Rath and Misra (1963) related selected personality variables to change of attitudes for a sample of 105 undergraduates in psychology courses at a university in India. A 6-item social and political attitude questionnaire, *Raven Progressive Matrices* test, *Soueif Rigidity Questionnaire*, and *Eysenck Extroversion-Introversion Questionnaire* were administered with the attitude scale readministered after about a week following a special discussion session on the issues covered in the questionnaire.

When personality scores were correlated with attitude test deviation scores, it was found that the more an individual deviated from the group standard, the less was the change in attitude towards the norm group that resulted from the group discussion. There was no relationship between rigidity and amount of change of attitude toward the group norm after the group discussion, although there was a significant positive correlation between rigidity and the number of extreme attitudes held. More intelligent persons exhibited a greater change of attitudes toward the group norm after group discussion. Other findings were that those having a greater amount of neuroticism exhibited less conformity to the group and that the relationship between extroversion and change of attitude toward the group mean was not significant.

Tennison and Snyder (1968) attempted to define certain personality characteristics expressed in religious attitudes and practices. The sample included 132 males and 167 females enrolled in psychology courses at Ohio State University. The *Thurston and Chave Scale for Measuring Attitudes Toward the Church* (TCS), *Kirkpatrick Religiosity Scale* (KRS), and the *Edwards Personal Preference Schedule* (EPPS) were the instruments used.

A *Mean Religiosity Index* (MRI) was derived for each student by averaging his or her score on the TCS and the KRS. Pearson product-moment correlations were then computed between EPPS and MRI. Abasement, affiliation, and deference were significantly related to religiosity, while succorance was *not* so related. The dominance and achievement scales were negatively related to religiosity, while endurance and nurturance were positively related to religiosity. No significant differences were obtained between personality needs and religiosity as a function of sex. However, a z test for MRI sex differences indicated that the females had a more positive attitude toward the church than did the male subjects ($p < .0001$). Results of this study support a Freudian conceptualization of religion.

Trent and Medsker (1968), in their study of 10,000 high school graduates in 16 communities across the country, found that young adults appear to change their attitudes and values during the first four years following their high school graduation. In addition, such changes varied by sex; ability; family background; and whether the students went to college, entered the work force or became homemakers. In addition, amount of college seemed to be related to the amount of attitude change taking place. Changes in values and attitudes took place most in college persisters, followed by those who attended college but later withdrew, followed by employed youth, and followed finally by homemakers who experienced neither college nor employment the first four years after high school.

Questionnaires containing attitude and value scales were administered just prior to high school graduation and periodically for the next five years. Complete longitudinal data were obtained from nearly 50% of the original sample. The primary methodology used was chi-square analysis.

It was found that amount of attendance at college, parents' education and religious orientation, in addition to academic aptitudes, were clearly related to change in autonomy and intellectual disposition. Concerning the students themselves, other adherents to a very conservative or dogmatic religion hindered development of autonomy. Such students also tended to major in engineering, education, and natural science. Personality variables measured by the *Omnibus Personality Inventory* related to amount of value and attitude change were degree of independence, openness, flexibility, intellectual and aesthetic orientations, preference for abstract thought, tolerance for ambiguity, and lack of authoritarianism.

The specific impact of college on the students' attitudes and values seemed unclear. It may be that the college serves as a reinforcing agency rather than an agency to modify prevailing values. On the other hand, just as plausible is the hypothesis that the college facilitates change for those students predisposed to it.

Young, Dustin, and Holtzman (1966) studied changes in attitude toward organized religion as indicated by responses to surveys of undergraduate students taken over a 9-year period at the University of Texas. A random sample of undergraduate students at the University of Texas were administered the *R Scale* (an instrument to measure attitudes toward organized religion) in 1955, 1958, and 1964. Simple analysis-of-variance procedures conducted across years revealed that attitudes towards organized religion did not change significantly between 1955 and 1958. However, from 1958 to 1964 there was a significant change ($p < .001$) to a less favorable attitude towards religion; and the change was more pronounced for men than for women.

In addition to sex, a number of other variables were examined to see if interactions were present. Several of the variables were found to be significantly related to attitude toward organized religion: grade point average, major academic field, religious preference, frequency of church attendance, and age and year in school. Several variables that had previously been shown to be related to attitude toward the Negro were not related to attitude toward religion: in-state versus out-of-state residence, father's income, and fraternity-sorority membership.

Success Viewed as Development of Attitudes, Values, Beliefs, and a Particular Philosophy of Life: Published Literature

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OTHER TYPES OF COLLEGE SUCCESS

The preceding chapters of this book have focused largely on college student development. Those are certainly important types of college success, and they benefit society as well as the individual students. However, there are other types of college success that are fully as important. *The problem was that little research was found for these other areas.*

The college success areas where little research was noted include the following: the various criteria of post-college success (i.e., what are the effects of college on the student months and years after graduation), the development of student power, the development in students of basic academic skills lacking upon entrance to the college, and the direct benefits to society and our country of our colleges and universities. A few additional criteria of college success were also found in one or more of the references which were reviewed.

In view of the meager number of research studies conducted in these remaining college success categories, annotations were not prepared for this chapter. The already overburdening length of this book also played a part in arriving at that decision.

Post-College Success

The true test of the effects of a college education on students is whether the effects persist after college and how long they persist. However, only a small number of alumni studies were noted in the literature; and few of these have made major contributions toward understanding the effects of the college experience on later adult success. Examples of studies that have made important contributions are Newcomb and associates' (1967) study of Bennington College alumni, Freedman's (1962) report of Vassar College alumni, and Campbell's (1965) study of people who had been counseled as University of Minnesota students 25 years earlier. Many colleges and universities have probably done alumni studies of some kind, but the quality might be questioned. Anyway, the results of only a few of these local alumni studies have been published or reviewed in the published literature.

In addition to effects on personal incomes, occupational success, standard of living, and status, colleges would hopefully lead to other personal post-college benefits. Included in such a list would be enjoyment and appreciation of life, use of leisure time, contributions to society, social awareness and relationships, family life and effectiveness as parents, citizenship participation, concern for and service to others, efficiency and nonpollution in the consumption of society's goods and services, adjustment to the retirement years, etc. Research has been almost completely lacking on the impact of college on the noneconomic aspects of life following graduation from college.

Several studies were noted which attempted to assess the impact of a college education (and years of college attendance) on the annual income and the lifetime earnings of people. Other sources of data in this area are the studies of prominent or successful persons, e.g., Roe's (1953) studies of scientists. In such studies, however, college effects were only tangential to the focus of the study.

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Development of Student Power

After the Berkeley disruptions in 1964, "student power" increasingly became a topic of research as well as of conversation. The main college goal of a number of students has been to change the college or society through student power. These are the so-called "student activitists." Student power is their major criterion of college success. Although some see the student apathy of the fifties returning during the seventies, student power concerns have not disappeared from the campuses of our country. Some of the studies listed in this section were concerned primarily with students who became activists merely because they were dissatisfied with various aspects of the college. Other concerned students were trying to bring about change on campus and/or in society because of involvement with social and/or political issues.

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Development in Basic Educational Skills

Before a student can succeed academically, he must have reached a certain level on basic educational skills such as study skills, reading skills, writing skills, etc. One criterion of success for colleges is to help disadvantaged students to develop such skills so that they can persist in college. Of course, this may also be a criterion of success for these students. Reading laboratories and other procedures are used to help bring skill levels of other students up to the maximum usable level for each student.

Research on the development of basic educational skills in college students seemed to have been generally neglected in the past, except for study skills. However, with the advent of special college programs for disadvantaged minority-group students and with the community college emphasis in the sixties on remedial or developmental education programs, interest in this area has increased markedly.

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Benefits to Society and Miscellaneous Criteria

All of the previous categories of the college success covered in this book have implications for society as a whole. They contribute to the overall quality of life in our society. In addition, they affect the values, habits, and life styles we pass on to our children which in turn affects future generations of our society. However, there are additional societal criteria of college success that focus on society as a whole and/or on its various segments rather than on the individuals who compose the system.

Many people would agree that higher education should strive for accomplishments such as the following: to help the society decide where it is going; to take the lead and stimulate positive change and innovation; to conduct experimentation and develop basic knowledge, products, and procedures that will lead to a more rewarding and beneficial level of life for the members of the society; to help the perpetuation of society by holding wastes of its resources to a minimum; to raise the cultural life of the community by providing cultural events and opportunities; to meet the trained manpower needs of our nation which results in an increased gross national product and a higher standard of living throughout society; etc.

Several studies were found which tried to assess higher education's impact on the gross national product and on the economic standard of living. However, research seemed to be completely lacking for the noneconomic societal effects areas. Some of those impacts have been commonly observed, e.g., the scientific and medical advances made through research conducted by university personnel. Evidence is lacking for the existence of other desired societal impacts.

Some research was also found for miscellaneous criteria of college success which aim at individual students or which are considered college success by individual students. Examples of such miscellaneous categories of college success include the development in students of an ability and a willingness to "speak up" or to "stand up and be counted," the development of a willingness to take necessary chances and to be adventuresome, the development of time-awareness, success in finding a proper mate (the so-called Mrs. degree), etc.

Just because practically no published research was found for most of these miscellaneous categories of college success does *not* mean that they are unimportant or that research regarding them would be unfruitful. For example, finding a proper mate is probably the paramount college goal for some students, and research to better understand such students and their goals could possibly be quite helpful. Perhaps a major purpose of this chapter will be to call attention to such college goals and to stimulate research concerned with such criteria.

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